
**© THE QUEEN'S PRINTER FOR
ONTARIO
2000**

REPRODUCED WITH PERMISSION

**L'IMPRIMEUR DE LA REINE POUR
L'ONTARIO**

REPRODUIT AVEC PERMISSION

micromedia
a division of IHS Canada

20 Victoria Street
Toronto, Ontario M5C 2N8
Tel.: (416) 362-5211
Toll Free: 1-800-387-2689
Fax: (416) 362-6161
Email: info@micromedia.on.ca

Lake Huron Management Unit
Report 01-99

Status and Outlook for the Major Commercial Fish Species of Lake Huron, 1999

Lake Huron Management Unit
Report 01-99

Status and Outlook for the
Major Commercial Fish Species
of Lake Huron, 1999

S.R. Gile and L.C. Mohr

Ontario Ministry of Natural Resources
Lake Huron Management Unit

5336

Rev.

(0.1 k P.R. 00 02 21)

ISSN 1198-9629

ISSN 1180-226X (subseries)

2000, Queen's Printer for Ontario
Printed in Ontario, Canada

Additional copies of this publication are available at a cost
of twenty dollars each plus g.s.t. from the address noted below:

Lake Huron Management Unit
Ministry of Natural Resources
1450 Seventh Avenue East
Owen Sound, Ontario
N4K 2Z1

Cheques or money orders should be made payable to the
Minister of Finance, and payment must accompany order.

Cette publication (technique) n'est disponible qu'en anglais.

TABLE OF CONTENTS

INTRODUCTION	1
LAKE HURON	5
LAKE HURON MAIN BASIN	7
MANAGEMENT AREA 4-1	9
LAKE WHITEFISH	10
CHUB	11
MANAGEMENT AREA 4-2	12
LAKE WHITEFISH	13
CHUB	18
MANAGEMENT AREA 4-3	20
LAKE WHITEFISH	21
CHUB	23
MANAGEMENT AREA 4-4	25
LAKE WHITEFISH	26
CHUB	29
YELLOW PERCH	33
LAKE TROUT/BACKCROSS	35
MANAGEMENT AREA 4-5	36
LAKE WHITEFISH	37
CHUB	42
YELLOW PERCH	45
WALLEYE	49
LAKE TROUT/BACKCROSS	53
MANAGEMENT AREA 4-7	54
LAKE WHITEFISH	55
CHUB	57
GEORGIAN BAY	59
MANAGEMENT AREA 5-1	61
LAKE WHITEFISH	62
CHUB	63
YELLOW PERCH	64
LAKE TROUT/BACKCROSS	65
MANAGEMENT AREA 5-2	66
LAKE WHITEFISH	67
CHUB	68
YELLOW PERCH	69
WALLEYE	70
MANAGEMENT AREA 5-3	71
LAKE WHITEFISH	72
CHUB	73
YELLOW PERCH	76
LAKE TROUT/BACKCROSS	77

MANAGEMENT AREA 5-4	78
LAKE WHITEFISH	79
CHUB	80
YELLOW PERCH	81
MANAGEMENT AREA 5-5	82
LAKE WHITEFISH	83
CHUB	84
YELLOW PERCH	85
MANAGEMENT AREA 5-6	86
LAKE WHITEFISH	87
CHUB	88
LAKE TROUT/BACKCROSS	90
MANAGEMENT AREA 5-7	91
LAKE WHITEFISH	92
CHUB	93
YELLOW PERCH	94
MANAGEMENT AREA 5-8	95
LAKE WHITEFISH	96
CHUB	99
LAKE TROUT/BACKCROSS	101
MANAGEMENT AREA 5-9	102
LAKE WHITEFISH	103
CHUB	104
LAKE TROUT/BACKCROSS	105
NORTH CHANNEL	106
MANAGEMENT AREA 6-1	108
LAKE WHITEFISH	110
YELLOW PERCH	117
WALLEYE	121
LAKE TROUT/BACKCROSS	123
NORTHERN PIKE	124
MANAGEMENT AREA 6-3	125
LAKE WHITEFISH	126
YELLOW PERCH	127
LAKE TROUT/BACKCROSS	128
ACKNOWLEDGEMENTS	129
APPENDIX 1	130
APPENDIX 2	164
APPENDIX 3	166
APPENDIX 4	167

INTRODUCTION

Assessment of the status of commercial fish populations in Lake Huron is done annually by the staff of the Lake Huron Management Unit. These determinations form the basis for revisions of catch quotas incorporated in commercial fishing licences. Quotas have been in effect since 1984, being the means by which harvest by licenced commercial fisheries is limited. This report contains annual harvest, effort, and abundance statistics for the period 1982 to 1998 as well as a record of the quotas that have been in place from 1984 onward.

The fundamental unit of organization within this report is the quota management area (Figure 1). Each quota management area section opens with a table presenting 1998 data for quota, harvest, and estimated landed value, by species, along with comments regarding changes in these values from the previous year. Each section also contains species sub-sections giving measures of total known harvest, fishing effort, abundance (CPUE or Catch Per Unit of Effort), and other biological data in graphical form. Where sufficient numbers of fish were sampled and aged from the commercial catch, the age composition and mean age of catches is also presented in tabular form. Should a management area contain more than one assessment area, there may be a further breakdown of data by these subdivisions. Comments are also provided which further describe the data being presented. Unless otherwise stated, percent changes reported in this document refer to the change from 1997 to 1998. Information presented in this report may include corrections to errors in previous years' reports.

Several terms are used throughout this document to describe the commercial fishery. The term quota in this report refers to the total amount of fish available for commercial harvest in 1998. These amounts are the totals of the quotas specified on issued commercial fishing licences, allowed harvests in other agreements, and any Crown held quota that was considered available to be harvested within a quota management area, basin or the entire lake. This was the total allowable commercial harvest within each area for 1998. One exception is for lake trout. The lake trout "quota" in the summary tables in the main body of the text, includes quota plus any temporary lake trout allowance. If there is a separate lake trout sub-section presented for a management area, the quota bar on the harvest and quota graph is the quota without lake trout allowance and the amount of each is noted in the text. Lake trout quotas reported in the appendices also do not include any lake trout allowance values. In 1998 a new temporary lake whitefish allowance was available to commercial fishing licences and agreements in Georgian Bay (quota management areas 5-1 through 5-9). Lake whitefish allowance is presented in the same way as lake trout allowance. A number of fish species are available to commercial fishing licences in unlimited quantities and are known as unlimited quota species.

In management areas where quota has been purchased or leased from licensees by the Crown (areas 4-4, 4-7, 5-3, 6-1), not all quota may have been issued on commercial fishing licences. In management area 6-1, quota and percent taken are presented for both the amounts issued on commercial fishing licences before any temporary transfers from the Crown held quota, and also for the amounts on commercial fishing licences after transfers from the Crown held quota. Pink salmon has been an unlimited quota species on Lake Huron commercial fishing licences since 1996.

In this report we use the term "harvest" in the main body of the report to refer to the weight of all fish caught that are landed, sold, and reconciled with the quota. This information is derived from the commercial fishers' Daily Catch Reports and from records of fish purchases by wholesalers. In appendix tables, "harvest" includes only those fish that are landed and sold for which there is a known associated targeted effort for a species; this may also include any fish that are reported as discarded. It is the harvest amount in the appendices that is used in the calculation of CPUE. This "harvest" amount is the harvest that is reconciled with quota plus any other amounts of fish reported as caught on catch reports, and is thus synonymous with the "catch" from known targeted effort. In any appendix tables that do not report CPUE the "harvest" amount is the total known catch, not just that from

targeted effort. For management area 6-1, two or more tables were required to present harvest, effort and associated CPUE data for some species. Aboriginal commercial effort data were not available at the time of printing. Any effort or CPUE graphs and tables that involve these data are signified by the term "Not Available" or "na".

The quantity of fish vulnerable to the commercial fishery in 1999 consists of two components; firstly those fish surviving from the population that was vulnerable to commercial fishing gear in 1998, and secondly those fish that grow into the catchable population during 1999 (the "recruits"). Part of the uncertainty inherent in predicting the vulnerable population of fish in a given year is due to the fact that several ages of fish may be partially catchable before they can be considered fully recruited. To aid in better understanding catchability and age of recruitment within each fishery, catch at age information is calculated where possible, using commercial catch age composition statistics and commercial harvest data. To permit more complete population modelling, it has been necessary in some cases to assume that fish caught by Aboriginal commercial fishers had the same age composition as catches made by others within the same general area and time period. Thus in some age composition tables, the estimated numbers of fish of each age includes the estimated Aboriginal harvest where applicable.

In this report the term "abundance" is used in a somewhat narrow sense to mean the quantity of catchable fish in the population. In other words, it equates to the supply of fish perceived by fishermen or the CPUE. Relative fish abundance is followed from year to year using indices (i.e. CPUE) constructed from the reported commercial harvest and effort data. The movement of year-classes (year-class = all fish hatched during a given year) of fish through the fishery is assessed using catch at age information which is obtained by partitioning catches into age classes (age class = all fish of the same age) using ages determined from scales of fish sampled from the commercial catch. Together, these pieces of information describe the state of the fishery in the previous year and give insight into the supply of catchable fish being carried over into the current year. A tracking of year to year changes in reproduction has been undertaken through independent index fishing and the indices of year-class strength thus derived are used to predict the abundance of recruits in the current and upcoming years.

Index fishing projects are carried out at locations within each basin (Figure 1), in some cases through partnerships with commercial fishers. Estimates of pre-recruit abundance derived from these separate projects appear within the respective management area sections of this document. Year-class strength indices are calculated based on CPUE in the index gear of fish in age classes younger than those which make up most of the commercial catch (pre-recruits) in order to reduce the effects of commercial fishing mortality. Pre-recruit ages are 1 to 3 year olds for lake whitefish, 2 to 5 year olds for chub and 1 to 3 year olds for yellow perch (1 to 4 year olds in the North Channel). The calculated index values express the abundance of each year-class as a unitless numeric value relative to the abundance of other year-classes.

A transition in the type of net material used for index fishing has occurred during recent years. Prior to 1993, nylon multi-filament nets were used, while in 1993 and 1994 both monofilament and multi-filament gill nets were used. Since 1995, only monofilament nets were used, signifying the completion of the multi-filament index netting data series. Due to the relatively short time series available for monofilament data and in order to maintain continuity with past data, indices derived from both gear types are presented in this report. The monofilament data are considered the best description of year-class strength for the 1990 and later cohorts.

For lake whitefish and walleye in specific quota management areas, catch statistics and recruitment forecasts were incorporated into a cohort model to calculate estimates of fishing mortality, population size, and exploitable biomass. This model is made up of a series of calculations which use the reported catches from previous years, the sampled age structure of the catch, and the pre-recruit index to produce an estimate of the number and weight

INTRODUCTION

of fish vulnerable to the fishery for each year including the forthcoming, 1999. Since biomass and catches are both expressed in weight units, there should be a close relationship between the biomass estimates and CPUE over the years.

Discarding of portions of catches is a practice which has taken on new meaning since the introduction of quotas. Discarding has been largely confined to chub and was previously normally limited to the usually small part of the catch which failed to meet quality standards. Beginning about 1985, discarding came to include varying proportions of the catch which in terms of market acceptance were of lower value. The increasing amounts of fish involved have biased fishery statistics. An effort has been made to correct for this bias, as is seen in some graphs where the retained and discarded portions of the catch are shown separately. A more acceptable discarding practice is the release of live fish, most often from trapnets, but also occasionally possible from gill nets. This discard information is also identified and included in specific graphs and tables wherever data were available.

Reports submitted by licenced commercial fishermen have long been an important source of stock assessment data. In recent years there have been two major changes in reporting which have the potential to increase the quality of assessment information. A new Daily Catch Report (DCR) form and reporting procedures allowing daily reporting of catches at landing were introduced in southern Lake Huron in 1989, extended to central Lake Huron in 1992 and were used across all of Lake Huron beginning in 1994. This new system has improved the quality of reporting and made more detailed data analysis possible in most management areas. However, the changes in the reporting of fishing effort could have some effect on CPUE calculations in certain areas. This was taken into consideration when final evaluations of stocks were made. A second major change began in 1990 when commercial fishermen began to report the weight of non-quota fish killed in the gear and then discarded, which gave assessment biologists a better insight into total catch.

A policy to deal with lake trout caught in excess of quota was implemented in all areas of Lake Huron in 1994. This was done to encourage more complete reporting of incidentally caught lake trout and discourage discarding. Lake trout allowance was available on commercial fishing licences in quota management areas where one or more licences reported lake trout catch in excess of quota in 1993. Lake trout in this category could be marketed through usual commercial channels with no penalty. In addition, all lake trout caught in excess of quota plus allowance could be marketed through usual commercial channels with a handling fee retained by the licensee and the remainder of the sale price remitted to the Crown. The temporary allowance is treated differently than quota administratively, in that the allowance cannot be leased or sold by itself but is present only in association with whitefish quota. If whitefish quota is leased or sold between licences, an associated amount of lake trout allowance is transferred along with it. Lake trout allowances were unchanged from 1997 amounts in 1998.

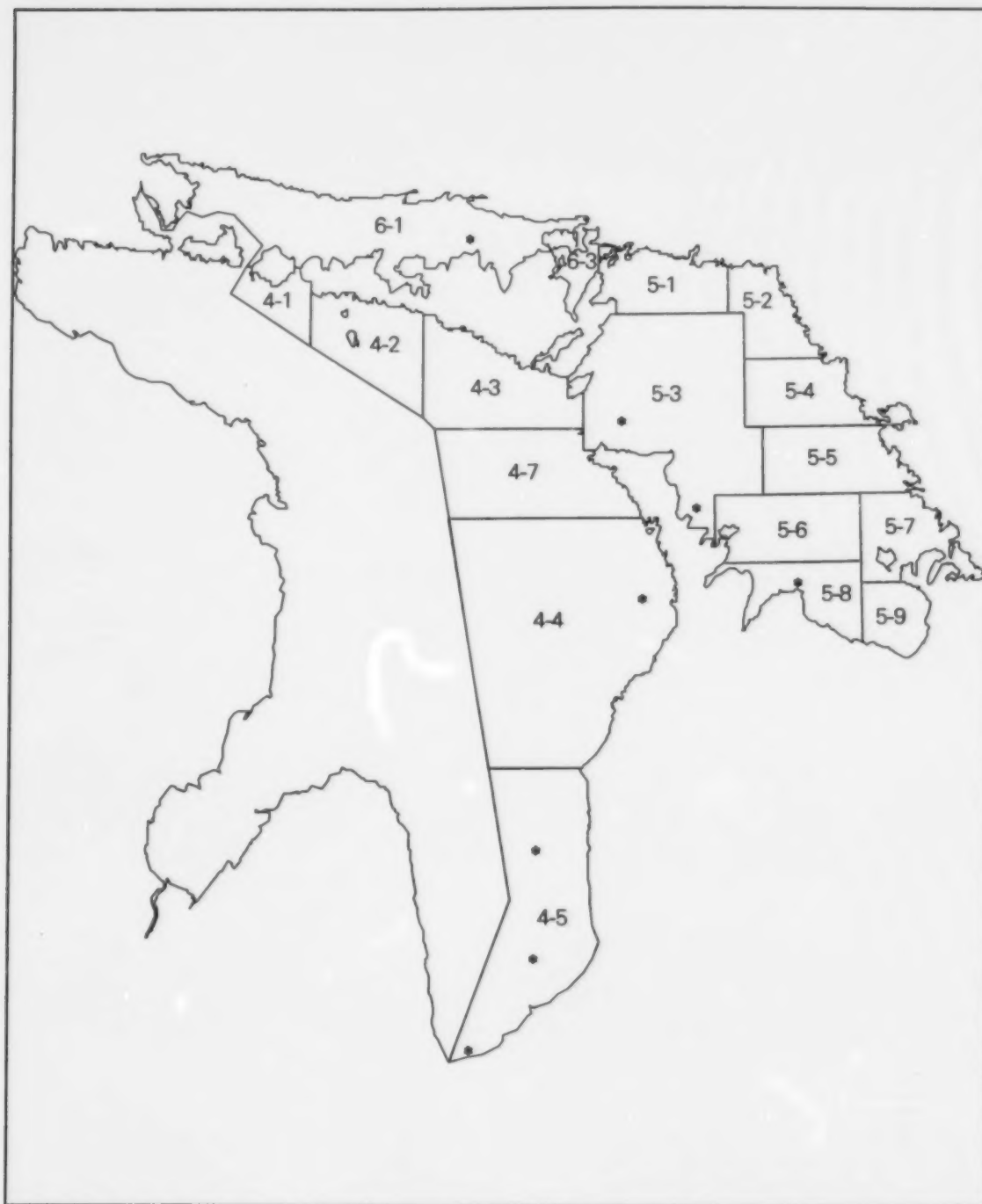


Figure 1. Lake Huron management areas. Index netting sites indicated by an asterisk.

INTRODUCTION

LAKE HURON



GENERAL

- Total quota (including lake trout and lake whitefish allowance) issued on commercial fishing licences and other allocations in all of Lake Huron amounted to 4,407,942 kg in 1998 (Table 1).
- Harvest of all fish species under quota control was 3,611,980 kg. Estimated value of the harvest of species under quota control increased to \$8,759,537.
- Total harvest and estimated value of all fish species was 3,685,231 kg and \$8,802,813, respectively (Table 1). An additional 96,118 kg of fish of no commercial value was reported caught.

Table 1. Quota, harvest, percent quota taken, catch, and estimated value by species for all three basins of Lake Huron in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	66,719	13,287	19.9	13,310	14,318
Chub	953,293	369,304	38.7	372,048	940,644
Lake Sturgeon	12,979	5,375	41.4	8,381	32,002
Lake Trout	110,876	161,847	146.0	170,203	249,504
Lake Whitefish	2,850,618	2,829,048	99.2	2,830,110	6,217,591
Northern Pike	22,061	1,187	5.4	1,254	1,551
Walleye	153,196	102,229	66.7	108,668	450,143
Yellow Perch	238,200	129,703	54.5	129,857	853,784
Alewife		3		35	7
Brown Trout		6		35	0
Burbot		37		15,900	0
Chinook Salmon		784		5,333	0
Coho Salmon		0		12	0
Common Carp		1,778		3,226	958
Freshwater Drum		30,388		30,433	13,356
Gizzard Shad		782		782	343
Lake Herring		18,189		18,839	14,136
Longnose Gar		0		99	0
Muskellunge		7		39	0
Pink Salmon		1,575		3,025	1,794
Rainbow Smelt		3,366		3,780	3,448
Rainbow Trout		52		316	0
Redfin Suckers		3,830		3,849	1,712
Rock Bass		21		21	35
Round Whitefish		9,838		10,238	6,482
Smallmouth Bass		4		14	5
Suckers		2,257		38,662	475
White Bass		316		349	504
White Perch		18		18	21
Other/Mixed		0		12,513	0
Total	4,407,942	3,685,231		3,781,349	8,802,813

LAKE HURON MAIN BASIN



GENERAL

- Total quota (including lake trout allowance) issued on commercial fishing licences and other allocations in the Lake Huron main basin was 3,079,349 kg (Table 4.1).
- Harvest of all fish species under quota control increased 2% to 2,632,592 kg. Estimated value of the harvest of species under quota control increased 8% to \$6,470,158.
- Total harvest and estimated value of all fish species was 2,670,082 kg and \$6,487,325, respectively (Table 4.1). An additional 17,318 kg of fish of no commercial value was reported caught.

Table 4.1. Quota, harvest, percent quota taken, catch, and estimated value by species for Lake Huron main basin in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	55,577	13,154	23.7	13,154	14,129
Chub	551,091	197,135	35.8	197,135	444,711
Lake Sturgeon	4,958	3,478	70.1	4,051	21,392
Lake Trout	68,679	70,334	102.4	71,913	117,918
Lake Whitefish	2,115,109	2,137,495	101.1	2,137,779	4,670,678
Northern Pike	1,514	2	0.1	2	4
Walleye	126,306	90,268	71.5	96,365	394,924
Yellow Perch	156,115	120,726	77.3	120,880	806,402
Alewife		3		5	7
Burbot		4		1,011	0
Chinook Salmon		92		273	0
Common Carp		922		940	484
Freshwater Drum		30,388		30,388	13,356
Gizzard Shad		782		782	343
Lake Herring		1,096		1,096	658
Pink Salmon		2		2	3
Rainbow Smelt		0		59	0
Redfin Suckers		3,725		3,725	1,643
Rock Bass		21		21	35
Round Whitefish		87		92	94
Smallmouth Bass		4		4	5
Suckers		32		451	14
White Bass		314		314	504
White Perch		18		18	21
Other/Mixed		0		6,940	0
Total	3,079,349	2,670,082		2,687,400	6,487,325

MANAGEMENT AREA 4-1

GENERAL

- Quota issued on commercial fish licences was 128,694 kg, including a lake trout allowance of 6,133 kg (Table 4-1.1).
- Harvest of all fish species under quota control increased slightly to 107,466 kg. Lake whitefish, lake trout, and chub made up almost all of the commercial fish harvest in this management area. Estimated value of the harvest of species under quota control increased 20% to \$220,016.
- Harvest and estimated value of all fish species sold was 107,528 kg and \$220,038, respectively (Table 4-1.1). An additional 4,299 kg of fish of no commercial value was reported caught.

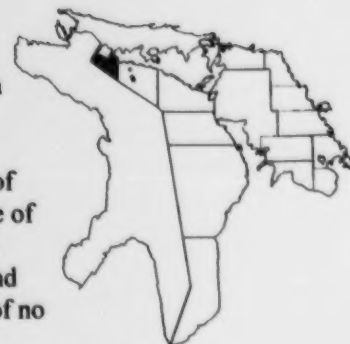


Table 4-1.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 4-1 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	1,287	0	0.0	0	0
Chub	22,833	5,674	24.9	5,674	13,508
Lake Sturgeon	203	0	0.0	0	0
Lake Trout	9,017	8,613	95.5	9,652	13,963
Lake Whitefish	94,785	93,153	98.3	93,328	192,459
Northern Pike	0	0	0.0	0	0
Walleye	519	26	5.0	26	86
Yellow Perch	50	0	0.0	0	0
Alewife		0		2	0
Burbot		0		1,007	0
Chinook Salmon		33		213	0
Lake Herring		24		24	17
Pink Salmon		2		2	3
Rainbow Smelt		0		59	0
Round Whitefish		3		8	2
Suckers		0		244	0
Other/Mixed		0		1,588	0
Total	128,694	107,528		111,827	220,038

LAKE WHITEFISH

- Quota issued was 94,785 kg.
- The harvest increased 7% to 93,153 kg, 98 % of the quota (Figure 4-1.1).
- Effort increased 12% to 698 km (Figure 4-1.2).
- CPUE decreased 4% to 134 kg/km (Figure 4-1.3).
- A catch sample of 100 fish consisted of 1% 4 year olds, 5% 5 year olds, 21% 6 year olds, 31% 7 year olds, 23% 8 year olds, 13% 9 year olds, and 6% 10 year olds and older.
- The age composition of the catch indicates several year-classes contribute to the fishery with a mean age of 7.34 years.
- Abundance is not expected to change greatly in 1999 as several year-classes continue to contribute to the harvest.

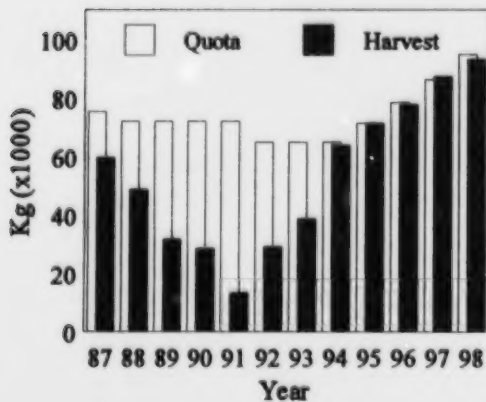


Figure 4-1.1. Lake whitefish quota and harvest (kg) for management area 4-1.

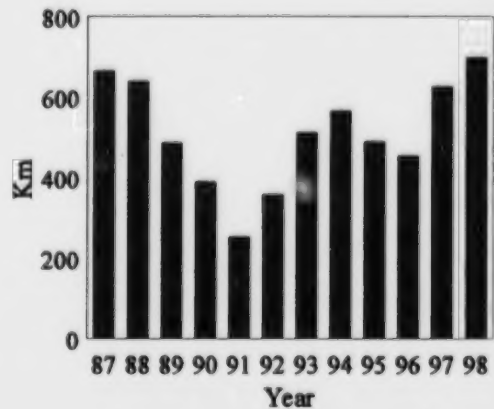


Figure 4-1.2. Lake whitefish gill net effort (km) for management area 4-1.

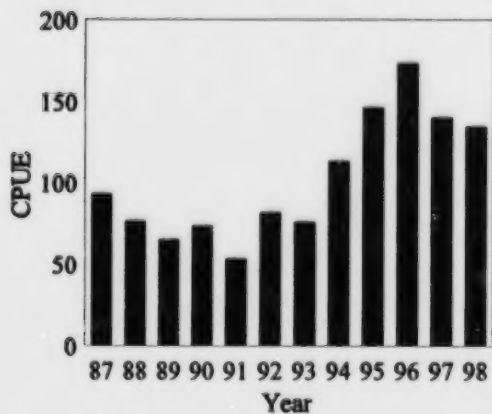


Figure 4-1.3. Lake whitefish gill net CPUE (kg/km) for management area 4-1.

CHUB

- Quota issued was 22,833 kg.
- Harvest decreased 47% to 5,674 kg, 25% of the quota (Figure 4-1.4).
- Effort also decreased 52% to 75 km (Figure 4-1.5).
- CPUE increased 6% to 73 kg/km (Figure 4-1.6).
- Abundance is unlikely to change greatly in 1999 as several relatively strong year-classes (1991 to 1994) contribute to the fishery (Figure 4-2.8).
- Increasing CPUE suggests an increase in abundance in 1999.

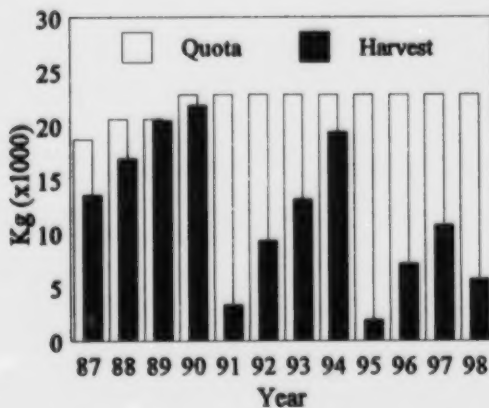


Figure 4-1.4. Chub quota and harvest (kg) for management area 4-1.

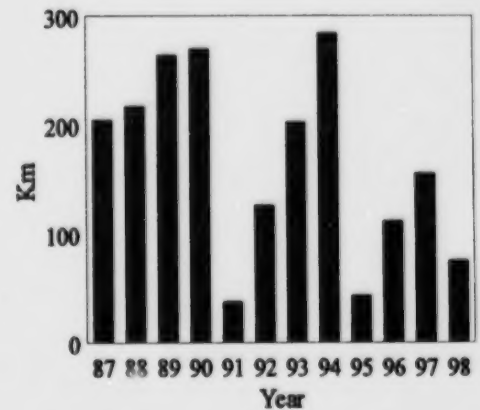


Figure 4-1.5. Chub gill net effort (km) for management area 4-1.

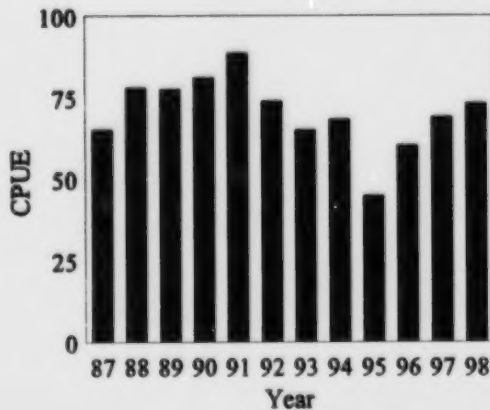


Figure 4-1.6. Chub gill net CPUE (kg/km) for management area 4-1.

MANAGEMENT AREA 4-2

GENERAL

- Quota issued on commercial fishing licences was 276,009 kg, including a lake trout allowance of 1,411 kg (Table 4-2.1).
- Harvest of all fish species under quota control increased 5% to 268,227 kg. Estimated value of the harvest of species under quota control increased 17% to \$489,889.
- Harvest and estimated value of all fish species sold was 268,902 kg and \$490,274, respectively (Table 4-2.1). An additional 3,742 kg of fish of no commercial value was reported caught.

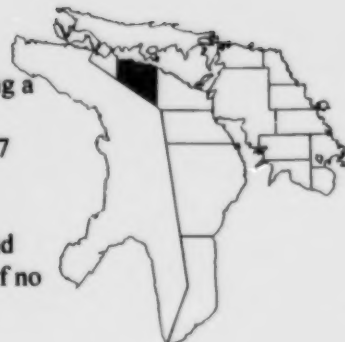


Table 4-2.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 4-2 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	3,636	156	4.3	156	102
Chub	43,582	38,584	88.5	38,584	89,671
Lake Sturgeon	357	43	12.0	43	248
Lake Trout	3,489	3,765	107.9	3,765	4,954
Lake Whitefish	224,243	225,528	100.6	225,637	394,300
Northern Pike	129	2	1.6	2	4
Walleye	373	148	39.7	148	607
Yellow Perch	200	1	0.5	1	3
Common Carp		431		431	242
Freshwater Drum		19		19	13
Lake Herring		216		216	124
Redfin Suckers		9		9	6
Other/Mixed		0		3,633	0
Total	276,009	268,902		272,644	490,274

LAKE WHITEFISH

- The quota issued was 224,243 kg.
- The harvest increased 9% to 225,528 kg, 101% of the quota (Figure 4-2.1). The gill net fishery accounted for 68% of the harvest with the remainder coming out of trap nets (Figure 4-2.2).
- Gill net effort increased 8% to 905 km while trap net effort increased 29% to 188 net lifts (Figure 4-2.3).
- CPUE in the gill net fishery decreased 6% to 168 kg/km and decreased 6% to 379 kg/net lift in the trap net fishery (Figure 4-2.4).
- Age 6 and 7 fish made up most of the harvest in 1998 (Tables 4-2.1, 4-2.2). Mean age of whitefish harvested continued to increase in 1998.
- Age composition of the catch and harvest suggests that the stronger than average 1991 year-class has been followed by several weaker years-classes.
- Overall abundance may decline slightly in 1999 (Figure 4-2.5) as the somewhat weaker post-1991 year-classes (Tables 4-2.3, 4-2.4) make up more of the catch.

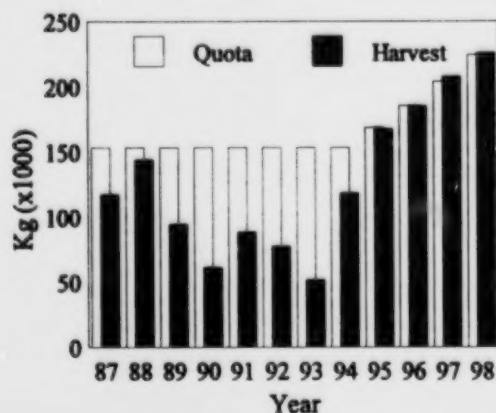


Figure 4-2.1. Lake whitefish quota and harvest (kg) for management area 4-2.

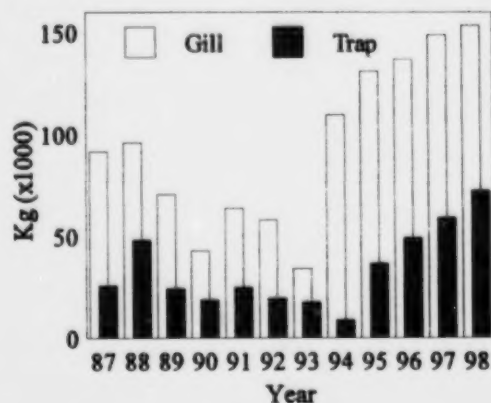


Figure 4-2.2. Lake whitefish harvest (kg) for management area 4-2.

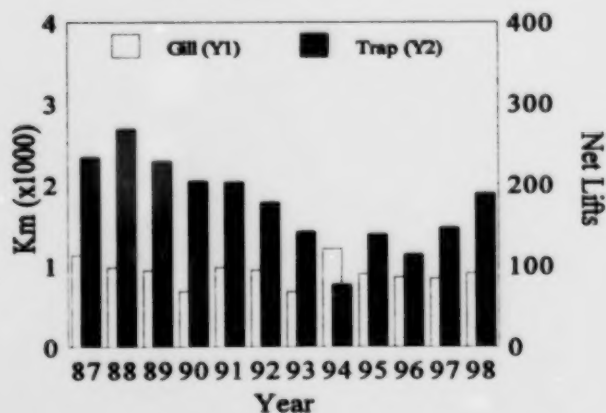


Figure 4-2.3. Lake whitefish effort for management area 4-2.

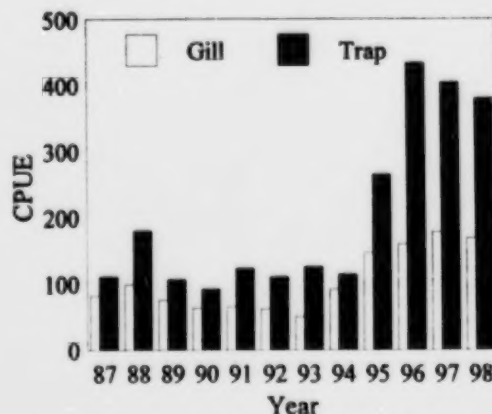


Figure 4-2.4. Lake whitefish CPUE (kg/km and kg/net lift) for management area 4-2.

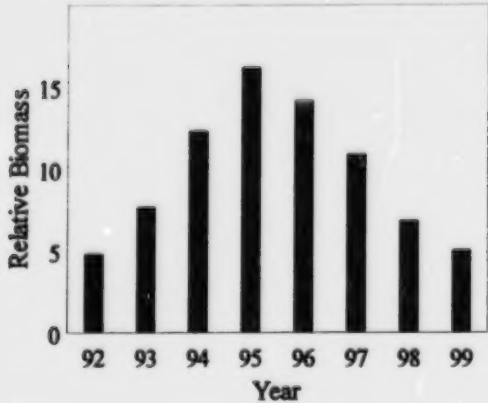


Figure 4-2.5. Exploitable biomass of whitefish (ages 4-10) in management area 4-2.

Table 4-2.2. Estimated number of lake whitefish harvested in gill nets in management area 4-2.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	1546	1027	453	1726	1731	1042	131	0	2050	0
4	19443	5367	7533	12318	28230	18102	10050	24658	11298	2110	4287	334
5	33378	53462	17481	8100	13596	18391	9951	27050	25489	41863	17828	12709
6	17924	15499	19117	6061	2358	3010	2897	15880	33076	37428	35121	28275
7	6460	1989	3220	3714	1057	835	996	6966	16922	22099	32315	52015
8	801	1574	1131	1040	1508	777	465	2508	5065	5972	12354	13894
9	83	0	407	212	223	478	152	899	2210	1346	4863	5167
10	0	348	206	352	122	141	157	639	949	502	1204	2387
11	0	0	0	24	122	0	0	367	369	301	175	196
12	0	97	0	0	0	0	101	228	189	201	89	138
13	0	0	0	0	0	0	0	0	0	100	89	138
>13	0	0	0	0	0	63	0	0	88	0	0	0
Mean Age	5.2	5.3	5.5	5.2	4.7	4.7	4.8	5.2	5.9	6.0	6.4	6.7

Table 4-2.3. Estimated number of lake whitefish harvested in trap nets in management area 4-2.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	35	0	0	0	0	0	0	0	0	0
3	359	472	1097	2921	2163	1468	2233	711	307	74	282	160
4	12123	9505	2993	6486	16313	10027	7418	3396	8520	1525	3566	758
5	7402	22245	3952	2706	3257	4148	3319	1852	9639	24170	12218	7662
6	2703	5289	5176	1734	486	947	1201	626	6701	9341	15118	13071
7	946	2074	2053	1230	236	144	335	367	3373	4169	14222	20586
8	208	575	505	540	33	23	70	92	1577	1640	4625	9950
9	26	0	143	125	119	0	246	14	733	411	408	2854
10	44	0	0	23	33	0	9	79	255	74	135	0
11	0	177	26	27	0	0	9	26	240	0	0	0
12	26	50	0	0	0	0	0	26	51	74	0	0
13	0	0	0	0	0	0	0	0	51	0	0	0
>13	0	0	0	0	0	0	0	0	0	0	0	0
Mean Age	4.7	5.0	5.3	4.7	4.2	4.3	4.4	4.7	5.6	5.8	6.0	6.6

Table 4-2.4. Estimated number of harvested and released lake whitefish caught in trap nets in management area 4-2.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1		514	0	48	39	176	0	0	0	0	0	0
2		7749	1468	4619	2650	4922	2048	1301	427	390	1305	2871
3		10652	3134	23624	16421	12815	11364	10249	6704	2490	9593	18229
4	N	14774	3346	8616	23119	12160	8820	4724	22580	5242	11630	23409
5	O	22729	4008	2706	3283	4148	3342	2031	12488	29905	17602	18603
6		5471	5176	1734	499	947	1213	885	7736	10831	17888	19349
7	D	2074	2053	1230	236	144	335	367	3586	4704	14652	23375
8	A	575	505	540	33	23	70	92	1577	1733	4625	9950
9	T	0	143	125	119	0	246	14	733	411	408	2854
10	A	0	0	23	33	0	9	79	255	74	135	0
11		177	26	27	0	0	9	26	240	0	0	0
12		50	0	0	0	0	0	26	51	74	0	0
13		0	0	0	0	0	0	0	51	0	0	0
>13		0	0	0	0	0	0	0	0	0	0	0
Mean Age		4.5	4.6	4.2	3.8	3.9	4.0	4.2	5.1	5.4	5.4	5.9

Table 4-2.5. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in management area 4-2.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	1.7	1.5	0.5	1.8	2.6	0.9	0.2	0.0	2.5	0.0
4	17.3	5.5	8.0	18.2	28.9	19.2	14.9	20.5	12.7	2.5	5.1	0.4
5	29.7	54.8	18.7	12.0	13.9	19.5	14.7	22.5	28.5	48.8	21.3	14.1
6	16.0	15.9	20.4	8.9	2.4	3.2	4.3	13.2	37.0	43.7	42.0	31.4
7	5.8	2.0	3.4	5.5	1.1	0.9	1.5	5.8	18.9	25.8	38.6	57.7
8	0.7	1.6	1.2	1.5	1.5	0.8	0.7	2.1	5.7	7.0	14.8	15.4
9	0.1	0.0	0.4	0.3	0.2	0.5	0.2	0.8	2.5	1.6	5.8	5.7
10	0.0	0.4	0.2	0.5	0.1	0.2	0.2	0.5	1.1	0.6	1.4	2.7
11	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.4	0.4	0.2	0.2
12	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.2
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
>13	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0

Table 4-2.6. CPUE-at-age (number/net) for lake whitefish harvested in trap nets in management area 4-2.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.5	1.8	4.8	14.4	10.7	8.3	15.8	9.4	2.2	0.7	1.9	0.9
4	52.0	35.5	13.1	32.0	80.8	56.7	52.6	44.7	61.7	13.5	24.4	4.1
5	31.8	83.0	17.3	13.3	16.1	23.4	23.5	24.4	69.9	213.9	83.7	41.0
6	11.6	19.7	22.7	8.5	2.4	5.4	8.5	8.2	48.6	82.7	103.6	70.0
7	4.1	7.7	9.0	6.1	1.2	0.8	2.4	4.8	24.4	36.9	97.4	110.1
8	0.9	2.2	2.2	2.7	0.2	0.1	0.5	1.2	11.4	14.5	31.7	53.2
9	0.1	0.0	0.6	0.6	0.6	0.0	1.7	0.2	5.3	3.6	2.8	15.3
10	0.2	0.0	0.0	0.1	0.2	0.0	0.1	1.0	1.9	0.7	0.9	0.0
11	0.0	0.7	0.1	0.1	0.0	0.0	0.1	0.3	1.7	0.0	0.0	0.0
12	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.7	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4-2.7. CPUE-at-age (number/net) for harvested and released lake whitefish caught in trap nets in management area 4-2.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1		1.9	0.0	0.2	0.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
2		28.9	6.4	22.8	13.1	27.8	14.5	17.1	3.1	3.5	8.9	15.4
3		39.7	13.7	116.4	81.3	72.4	80.6	134.9	48.6	22.0	65.7	97.5
4	N	55.1	14.7	42.4	114.4	68.7	62.6	62.2	163.6	46.4	80.0	125.2
5	O	84.8	17.6	13.3	16.2	23.4	23.7	26.7	90.5	264.7	120.6	99.5
6		20.4	22.7	8.5	2.5	5.4	8.6	11.6	56.1	95.9	122.5	103.5
7	D	7.7	9.0	6.1	1.2	0.8	2.4	4.8	26.0	41.6	100.4	125.0
8	A	2.1	2.2	2.7	0.2	0.1	0.5	1.2	11.4	15.3	31.7	53.2
9	T	0.0	0.6	0.6	0.6	0.0	1.7	0.2	5.3	3.6	2.8	15.3
10	A	0.0	0.0	0.1	0.2	0.0	0.1	1.0	1.9	0.7	0.9	0.0
11		0.7	0.1	0.1	0.0	0.0	0.1	0.3	1.7	0.0	0.0	0.0
12		0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.7	0.0	0.0
13		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
>13		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CHUB

- Quota issued in 1998 was 43,582 kg.
- Harvest decreased 11% to 38,584 kg, 89% of the quota (Figure 4-2.6).
- Effort decreased 31% to 532 km (Figure 4-2.7).
- CPUE (harvest + discards) increased 82% to 122 kg/km (Figure 4-2.8). The discard component increased 345% to 49.8 kg/km.
- Age 5 to 7 year olds made up most of the catch, with age 5 being the most abundant age class (Tables 4-2.8,4-2.9).
- Overall abundance appeared to increase in 1998.
- The 1991 to 1993 year-classes were more abundant in the catch than expected.
- Abundance may increase in 1999 as recent year-classes appear to be strong.

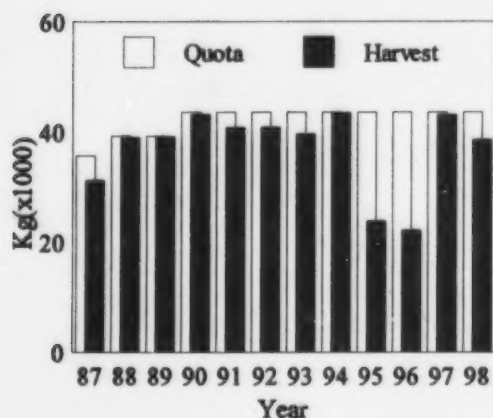


Figure 4-2.6. Chub quota and harvest (kg) for management area 4-2.

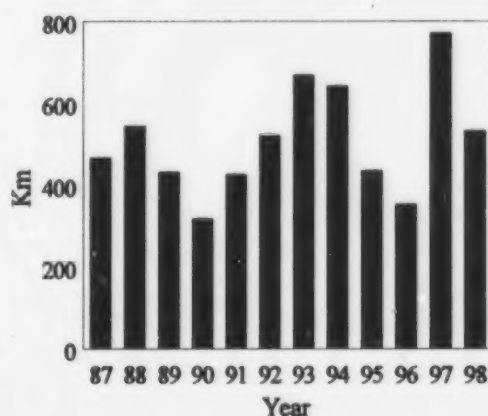


Figure 4-2.7. Chub gill net effort (km) for management area 4-2.

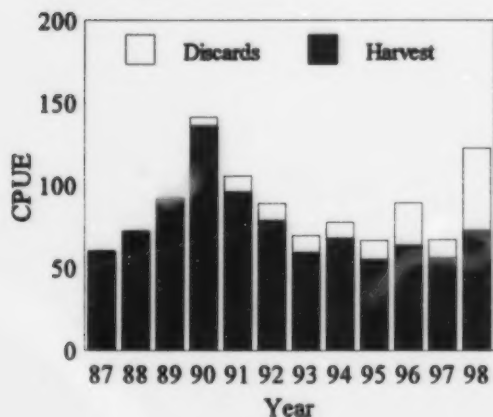


Figure 4-2.8. Chub (harvest+discards) for gill net CPUE (kg/km) for management area 4-2. CPUE corrected for discarding.

Table 4-2.8. Estimated number of harvested and discarded chub in gill nets in management area 4-2.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	93	0	0	0	0	0	0	0	0
2	41	0	23	931	0	0	0	0	0	0	0	0
3	786	231	227	428	2459	1094	466	219	0	0	716	0
4	6785	1863	172	664	1524	9241	2991	1283	0	1900	2659	45882
5	20994	33715	9598	11731	5810	11072	10411	8181	3017	10551	14782	127023
6	38157	63111	61395	47249	26913	34371	23839	49156	20917	30503	46910	92466
7	50686	58561	63761	82831	71828	73411	61551	57476	46420	70917	74145	85217
8	26742	24246	43697	53111	67460	61846	69967	67830	45645	40686	87537	31441
9	6143	6799	15810	9320	32433	24056	52195	53653	28799	29753	42706	15749
10	440	1497	4630	3564	4866	6004	17958	19079	9096	9020	10818	5390
11	60	312	379	0	911	0	2313	5342	3237	1845	4347	0
12	0	0	0	0	419	293	591	0	203	0	0	0
13	0	0	0	0	0	0	0	547	0	0	0	1078
>13	0	0	0	0	0	0	0	0	0	0	0	0
Mean Age	6.5	6.4	6.7	6.8	7.4	7.1	7.6	7.6	7.8	7.5	7.2	5.8

Table 4-2.9. CPUE-at-age (number/km) for harvested and discarded chub in gill nets in management area 4-2.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.1	0.0	0.1	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.7	0.4	0.5	1.4	5.8	2.1	0.7	0.3	0.0	0.0	0.9	0.0
4	14.5	3.4	0.4	2.1	3.6	17.6	4.5	2.0	0.0	5.4	3.5	86.2
5	45.0	62.0	22.3	37.0	13.6	21.0	15.6	12.7	6.9	29.9	19.2	238.8
6	81.8	116.0	142.4	149.0	63.2	65.3	35.7	76.6	48.1	86.5	60.8	173.8
7	108.6	107.7	147.9	261.2	168.6	139.4	92.1	89.5	106.8	201.1	96.2	160.2
8	57.3	44.6	101.4	167.5	158.4	117.4	104.7	105.7	105.0	115.4	113.5	59.1
9	13.2	12.5	36.7	29.4	76.1	45.7	78.1	83.6	66.3	84.4	55.4	29.6
10	0.9	2.8	10.7	11.2	11.4	11.4	26.9	29.7	20.9	25.6	14.0	10.1
11	0.1	0.6	0.9	0.0	2.1	0.0	3.5	8.3	7.5	5.2	5.6	0.0
12	0.0	0.0	0.0	0.0	1.0	0.6	0.9	0.0	0.5	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	2.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: corrected for discards.

MANAGEMENT AREA 4-3

GENERAL

- Quota issued was 175,629 kg, including a lake trout allowance of 5,106 kg (Table 4-3.1).
- Harvest of all fish species under quota control decreased 2% to 183,664 kg. Estimated value of the harvest of species under quota control increased slightly to \$328,575.
- Harvest and estimated value of all fish species sold was 185,055 kg and \$329,362 respectively. An additional 1,913 kg of fish of no commercial value was reported caught.



Table 4-3.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 4-3 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	3,699	66	1.8	66	44
Chub	36,727	36,747	100.1	36,747	86,352
Lake Sturgeon	58	3	5.2	3	16
Lake Trout	6,840	15,003	219.3	15,003	20,022
Lake Whitefish	126,190	131,804	104.4	131,804	222,010
Northern Pike	540	0	0.0	0	0
Walleye	550	41	7.5	41	131
Yellow Perch	1,025	0	0.0	0	0
Chinook Salmon		0		1	0
Common Carp		491		509	230
Lake Herring		856		856	517
Round Whitefish		44		44	40
Suckers		0		175	0
Other/Mixed		0		1,719	0
Total	175,629	185,055		186,968	329,362

LAKE WHITEFISH

- The quota issued was 126,190 kg.
- The harvest increased less than 1% to 131,804 kg, 104% of the quota (Figure 4-3.1).
- Gill net effort decreased 17% to 797 km (Figure 4-3.2).
- CPUE increased 7% to 147 kg/km (Figure 4-3.3).
- Age 6, 7 and 8 fish dominated the commercial harvest in 1998, with 7 year olds (1991 year-class) being most abundant (Tables 4-3.2,4-3.3). Mean age of the harvested fish increased slightly in 1998.
- Abundance increased slightly in 1998 as the strong 1991 year-class supported much of the fishery.
- Exploitable biomass is projected to decrease slightly in 1999 (Figure 4-3.4) as the weaker post-1991 year-classes continue to move into the catch (Table 4-3.2,4-3.3).

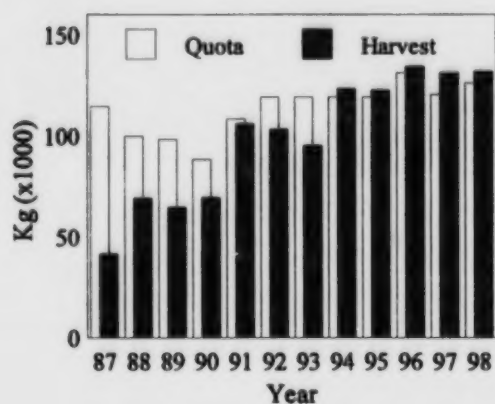


Figure 4-3.1. Lake whitefish quota and harvest (kg) for management area 4-3.

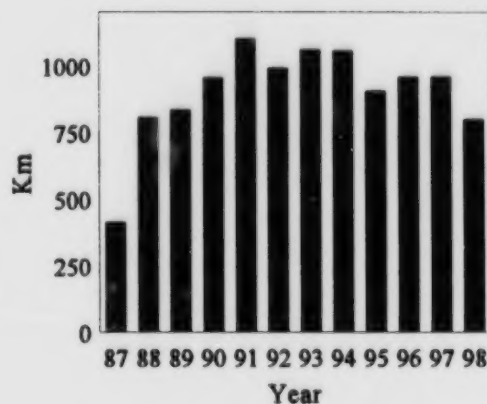


Figure 4-3.2. Lake whitefish gill net effort (km) for management area 4-3.

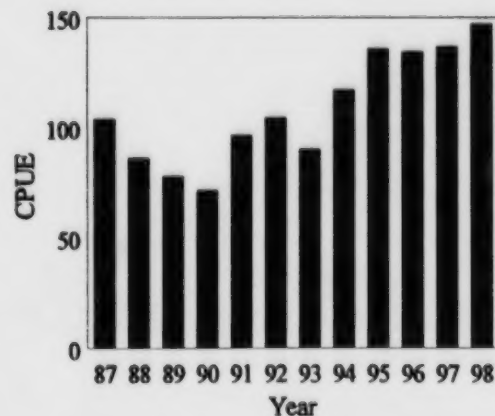


Figure 4-3.3. Lake whitefish annual gill net CPUE (kg/km) for management area 4-3.

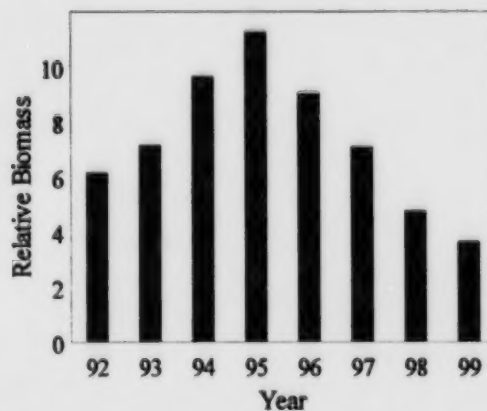


Figure 4-3.4. Exploitable biomass of whitefish (ages 4-10) in management area 4-3.

Table 4-3.2. Estimated number of lake whitefish harvested in gill nets in management area 4-3.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1		0	0	0	0	0	0	0	0	0	0	0
2		0	0	0	81	0	0	0	0	0	0	0
3		163	231	428	2062	2847	1363	398	0	58	0	0
4		5287	5805	14340	34909	18010	20483	12118	8652	993	327	417
5	N	22619	12722	11269	27607	32452	19490	26379	16967	27876	12448	6085
6	O	16525	15430	7915	4621	9812	17556	18436	30392	37272	36517	13134
7		3064	6422	4474	1291	2124	5721	12428	12491	20530	29823	37584
8	D	658	1384	4514	1311	628	1015	5087	8088	6374	7550	17033
9	A	123	579	1063	1074	701	326	1286	3579	1858	1892	4205
10	T	172	250	331	1075	915	320	870	631	548	2392	2701
11	A	93	0	248	204	355	165	376	741	0	707	194
12		0	0	152	0	58	83	353	320	108	269	223
13		0	0	124	0	0	0	78	129	0	0	223
>13		0	0	0	0	58	0	0	96	0	0	0
Mean Age		5.4	5.8	5.5	4.8	5.1	5.2	5.8	6.3	6.1	6.6	7.1

Table 4-3.3. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in management area 4-3.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2		0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3		0.2	0.3	0.5	1.9	2.9	1.3	0.4	0.0	0.1	0.0	0.0
4	N	6.6	7.0	15.1	31.8	18.2	19.4	11.5	9.6	1.0	0.3	0.5
5	O	28.1	15.3	11.8	25.1	32.9	18.4	25.0	18.8	29.2	13.0	7.7
6		20.5	18.6	8.3	4.2	9.9	16.6	17.5	33.7	39.0	38.2	16.6
7	D	3.8	7.7	4.7	1.2	2.2	5.4	11.8	13.8	21.5	31.2	47.4
8	A	0.8	1.7	4.7	1.2	0.6	1.0	4.8	9.0	6.7	7.9	21.5
9	T	0.2	0.7	1.1	1.0	0.7	0.3	1.2	4.0	1.9	2.0	5.3
10	A	0.2	0.3	0.4	1.0	0.9	0.3	0.8	0.7	0.6	2.5	3.4
11		0.1	0.0	0.3	0.2	0.4	0.2	0.4	0.8	0.0	0.7	0.2
12		0.0	0.0	0.2	0.0	0.1	0.1	0.3	0.4	0.1	0.3	0.3
13		0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3
>13		0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0

CHUB

- Quota issued was 36,727 kg.
- Harvest decreased 22% to 36,747 kg, slightly over 100% of the quota (Figure 4-3.5).
- Effort decreased 39% to 311 km (Figure 4-3.6).
- CPUE (harvest + discards) increased 69% to 214 kg/km (Figure 4-3.7). The discard component increased 173% to 95.9 kg/km.
- Age 5 and 6 year old fish were most abundant, with increased numbers of age 4 year old fish in the catch (Table 4-3.5).
- Overall abundance appeared to increase in 1998.
- Abundance may increase in 1999 as recent year-classes appear to be stronger than expected (Table 4-3.5).

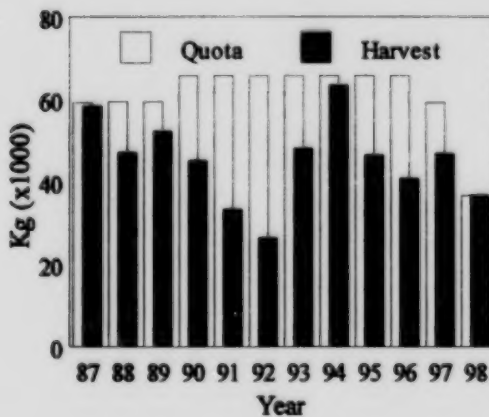


Figure 4-3.5. Chub quota and harvest (kg) for management area 4-3.

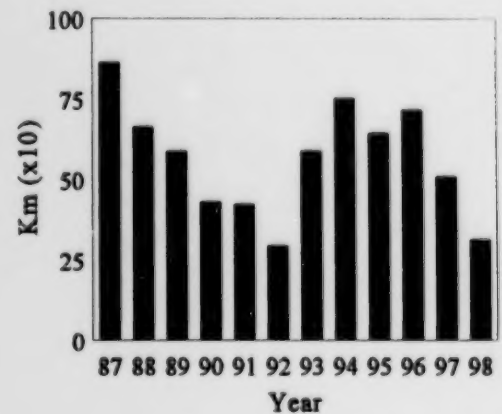


Figure 4-3.6. Chub gill net effort (km) for management area 4-3.

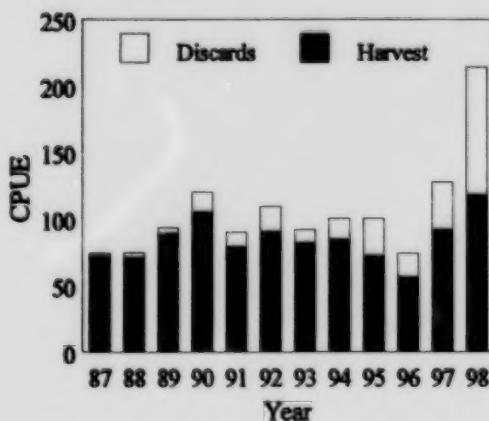


Figure 4-3.7. Chub (harvest+discards) gill net CPUE (kg/km) for management area 4-3. CPUE corrected for discards.

Table 4-3.4. Estimated number of harvested and discarded chub in gill nets in management area 4-3.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1		0	0	0	0	0	0	0	0	0	0	0
2		0	0	2320	0	0	0	0	0	0	0	0
3		179	0	0	214	369	283	244	0	1319	563	0
4	N	9743	746	737	535	5323	4563	5264	7119	3270	4507	54103
5	O	70016	22137	10268	6913	6333	18074	39150	24770	20513	51238	145979
6		77769	90033	47434	19500	40980	36529	82005	85378	46998	92159	101779
7	D	62998	88014	94890	74935	53184	69980	96793	93696	88261	94985	85323
8	A	30239	38208	62466	59458	33035	72482	92181	92596	79270	45619	23795
9	T	6393	8429	19470	23351	14375	37952	47734	50350	36216	20727	11274
10	A	480	4150	2003	2252	1655	12340	18357	15732	7924	1873	3419
11		0	298	0	1306	164	783	2156	2406	1267	2901	0
12		0	0	0	0	0	0	0	1138	0	0	0
13		0	0	0	0	0	0	0	0	0	0	684
>13		0	0	501	0	0	0	0	0	0	0	0
Mean Age		6.1	6.5	7.0	7.4	7.3	7.4	7.3	7.4	7.3	6.8	7.6

Note: corrected for discards 1988 onward.

Table 4-3.5. CPUE-at-age (number/km) for harvested and discarded chub in gill nets in management area 4-3.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2		0.0	0.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3		0.3	0.0	0.0	0.5	1.2	0.5	0.3	0.0	1.9	1.1	0.0
4	N	14.7	1.3	1.7	1.3	17.1	7.8	7.0	11.1	4.6	8.9	174.0
5	O	105.7	37.7	23.9	16.4	20.3	30.8	52.2	38.6	28.7	100.8	469.4
6		117.4	153.4	110.6	46.2	131.6	62.3	109.3	133.0	65.8	181.4	327.3
7	D	95.1	150.0	221.2	177.7	170.7	119.3	129.0	146.0	123.5	186.9	274.4
8	A	45.6	65.1	145.6	141.0	106.1	123.6	122.8	144.3	111.0	89.8	76.5
9	T	9.7	14.4	45.4	55.4	46.2	64.7	63.6	78.4	50.7	40.8	36.3
10	A	0.7	7.1	4.7	5.3	5.3	21.0	24.5	24.5	11.1	3.7	11.0
11		0.0	0.5	0.0	3.1	0.5	1.3	2.9	3.8	1.8	5.7	0.0
12		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0
13		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
>13		0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: corrected for discards 1988 onward.

MANAGEMENT AREA 4-4

GENERAL

- Quota was 662,415 kg including a lake trout allowance of 5,992 kg (Table 4-4.1).
- Harvest of all fish species under quota control decreased 4% to 602,554 kg.



Table 4-4.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 4-4 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	unlimited	0	0.0	0	0
Chub	258,173	106,501	41.3	106,501	234,790
Lake Sturgeon	100	0	0.0	0	0
Lake Trout	7,998	8,478	106.0	8,478	16,821
Lake Whitefish	385,845	484,669	125.6	484,669	1,196,713
Northern Pike	393	0	0.0	0	0
Walleye	742	2,906	391.6	2,906	12,811
Yellow Perch	9,164	0	0.0	0	0
Total	662,415	602,554		602,554	1,461,135

LAKE WHITEFISH

- Quota was 385,845 kg (Figure 4-4.1).
- Total harvest was 484,669 kg, 126% of the quota (Figure 4-4.1).
- Whitefish effort in this management area was unavailable at the time of printing.
- Age 6 and 7 year old fish made up most of the harvest in 1997 (Table 4-4.2). The number of age 4 and 5 fish caught was greatly reduced in 1997, relative to 1996.
- Pre-recruit indices indicated relatively weak 1994 and 1995 year-classes followed by strong 1996 and 1997 year-classes (Figures 4-4.5,4-4.6). Catch samples suggested the 1992 through 1995 year-classes are relatively less abundant (Table 4-4.2).
- Abundance is not expected to change greatly in 1999, as several average year-classes make up the catch.

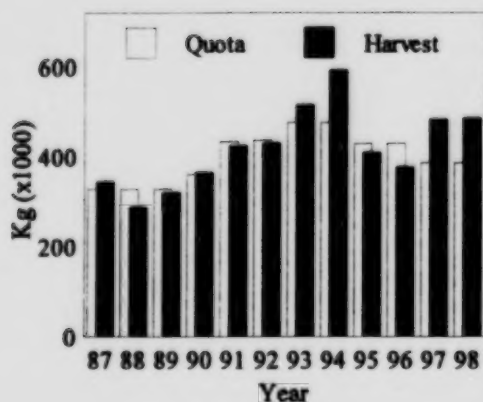


Figure 4-4.1. Lake whitefish quota and harvest (kg) for management area 4-4.

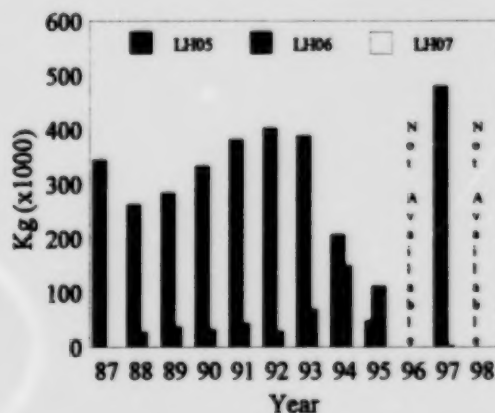


Figure 4-4.2. Lake whitefish harvest (kg) by subarea for management area 4-4.

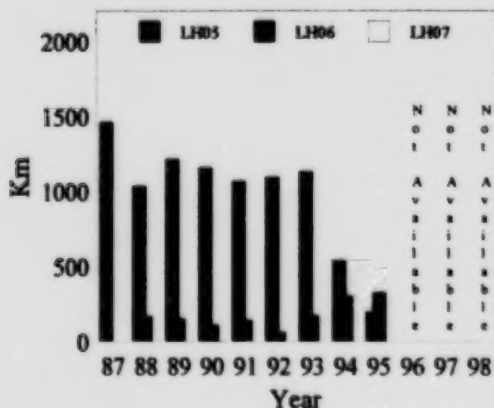


Figure 4-4.3. Lake whitefish gill net effort (km) by subarea for management area 4-4.

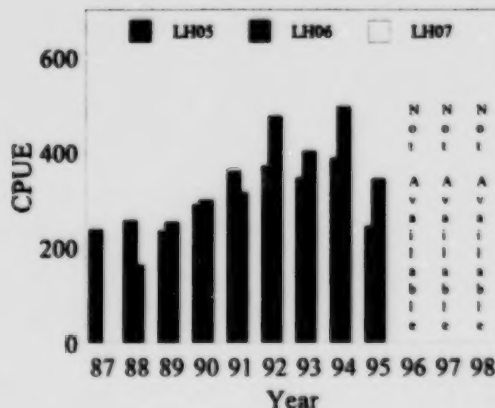


Figure 4-4.4. Lake whitefish annual gill net CPUE (kg/km) for management area 4-4.

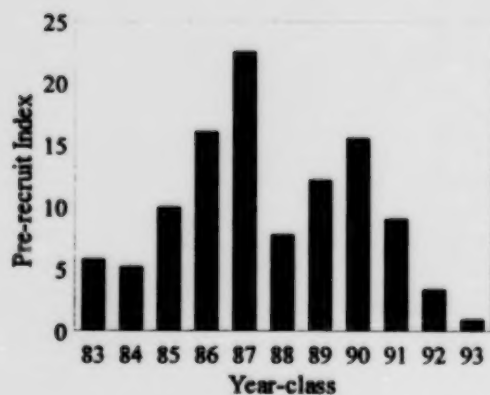


Figure 4-4.5. Indices of year-class strength for lake whitefish from index gillnetting in management area 4-4, using multi-filament nets.

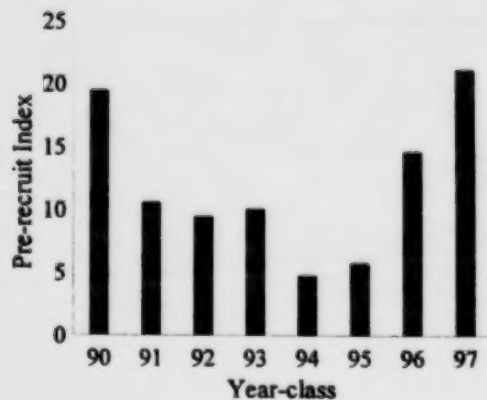


Figure 4-4.6. Indices of year-class strength for lake whitefish from index gillnetting in management area 4-4, using monofilament nets.

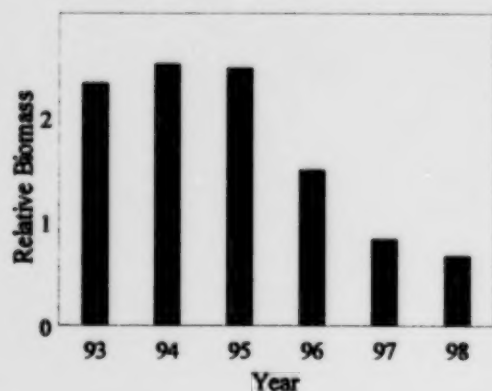


Figure 4-4.7. Exploitable biomass of lake whitefish (ages 4-10) in management area 4-4 to 1998.

Table 4-4.2. Estimated number of lake whitefish harvested in gill nets in management area 4-4.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	N
3	12432	16471	4313	6620	6946	3769	961	1214	31	0	0	O
4	117690	78137	150873	129856	131869	40491	65628	41521	8511	1601	894	T
5	82364	42774	36958	95058	101877	169470	95219	184132	93191	81758	16543	
6	34697	19099	9123	20719	34312	56235	117982	92745	73771	138452	89994	A
7	9769	9385	7926	9605	8343	22181	36462	57101	30411	48679	85017	V
8	1371	2995	1701	8490	3502	3321	18016	17758	14300	14266	33075	A
9	228	1035	2722	5168	1644	1731	4574	5278	5260	4667	7021	I
10	367	445	794	372	1483	673	2504	2699	1938	785	2174	L
11	0	0	0	0	411	530	1612	815	387	10	135	A
12	0	155	0	0	809	265	674	1327	269	6	135	B
13	0	0	0	1103	0	0	345	0	277	0	135	L
>13	0	0	0	0	0	0	0	0	0	0	0	E
Mean												
Age	4.7	4.7	4.4	4.9	4.8	5.3	5.8	5.6	6.1	6.0	6.5	

Table 4-4.3. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in management area 4-4.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N	N
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	O	O
3	8.5	16.0	3.6	5.8	6.6	3.3	0.5	1.5	0.1	0.0	T	T
4	80.8	76.0	124.7	112.7	125.5	34.9	44.1	49.7	4.9	6.6		
5	56.6	41.6	30.5	82.5	96.9	146.1	62.5	220.6	69.1	41.1	A	A
6	23.8	18.6	7.5	18.0	32.6	48.5	81.4	111.1	73.9	66.8	V	V
7	6.7	9.1	6.6	8.3	7.9	19.2	25.8	68.4	30.1	32.8	A	A
8	0.9	2.9	1.4	7.4	3.3	2.9	13.2	21.3	14.2	13.6	I	I
9	0.2	1.1	2.3	4.5	1.6	1.5	3.5	6.3	5.6	4.3	L	L
10	0.3	0.4	0.7	0.3	1.4	0.6	2.0	3.2	2.9	1.3	A	A
11	0.0	0.0	0.0	0.0	0.4	0.5	1.2	1.0	0.6	1.0	B	B
12	0.0	0.2	0.0	0.0	0.8	0.2	0.5	1.6	0.1	0.6	L	L
13	0.0	0.0	0.0	1.0	0.0	0.0	0.3	0.0	0.3	0.0	E	E
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

CHUB

- Quota was 258,173 kg (Figure 4-4.8).
- Total harvest was 106,501 kg, 41% of the final quota.
- Effort information was unavailable at time of printing.
- In 1997, age 5, 6, and 7 year old fish made up most of the harvest in LH05, while age 6, 7, and 8 year old fish made up most of the harvest in LH06 (Tables 4-4.4,4-4.5).
- Abundance may decline in 1999 as weaker recent year-classes (Figures 4-4.13,4-4.14) move through the fishery.

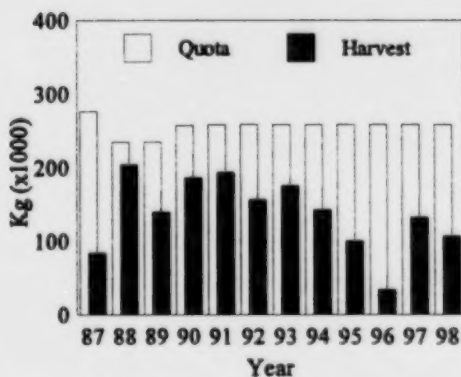


Figure 4-4.8. Chub quota and harvest for management area 4-4.

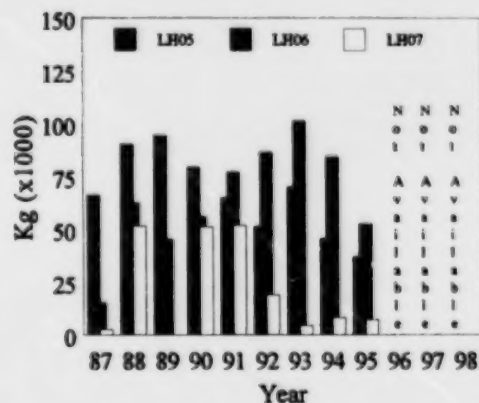


Figure 4-4.9. Chub harvest (kg) by subarea for management area 4-4.

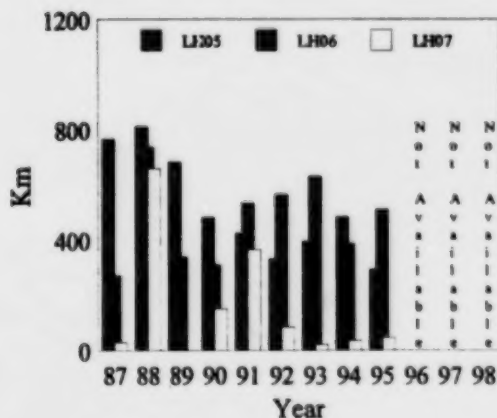


Figure 4-4.10. Chub gill net effort (km) by subarea for management area 4-4.

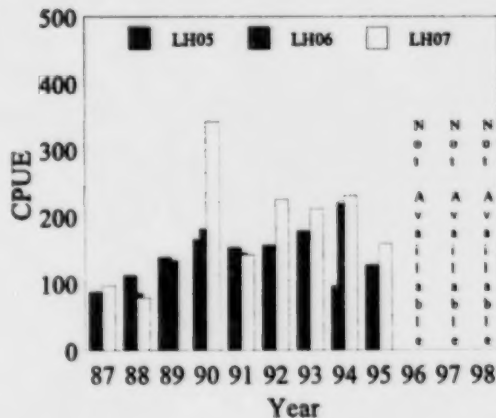


Figure 4-4.11. Chub gill net CPUE (kg/km) by subarea for management area 4-4.

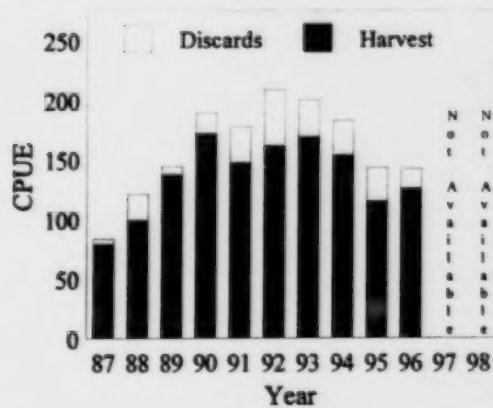


Figure 4-4.12. Chub (harvest + discards) gill net CPUE (kg/km) for management area 4-4. CPUE corrected for discarding 1986 onward.

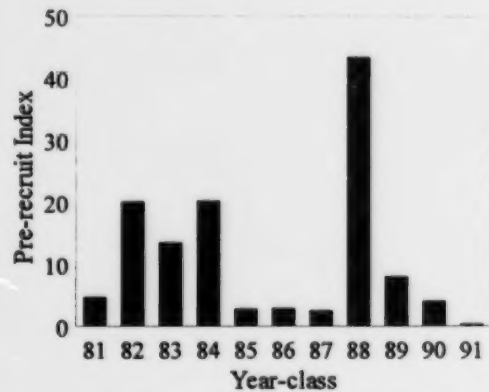


Figure 4-4.13. Indices of year-class strength for chub from gillnetting in management area 4-4, using multifilament nets.

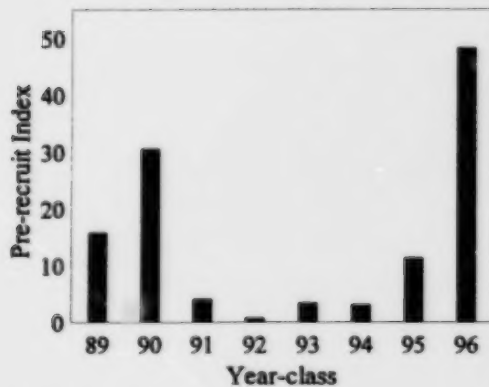


Figure 4-4.14. Indices of year-class strength for chub from index gillnetting in management area 4-4, using monofilament nets.

Table 4-4.4. Estimated number of harvested and discarded chub in gill nets in assessment area LH05 (subarea of management area 4-4).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	1383	0	0	519	0	0	0	0	N
3	4854	22957	726	0	1306	692	1104	0	415	0	388	O
4	25413	119011	1568	0	1048	5726	7385	3813	2977	174	13767	T
5	119588	252048	117513	22806	12699	7510	20243	37131	26965	1290	116946	
6	100968	200703	272661	171302	43386	40570	71809	76211	65509	3893	141011	A
7	101177	88463	81690	121108	155035	92933	113487	84946	67555	5887	87899	V
8	32762	14512	21952	75496	59818	89200	100147	68635	48074	3714	31191	A
9	7169	2286	0	8379	19557	25111	45116	28349	17737	1652	4730	I
10	1926	1250	0	0	1120	4700	12646	10899	4124	184	865	L
11	0	0	0	2332	0	374	3786	1188	851	68	0	A
12	0	0	0	2332	0	0	697	0	0	0	0	B
13	0	0	0	0	0	0	0	0	0	0	0	L
>13	0	0	0	0	0	0	0	0	0	0	0	E
Mean												
Age	6.0	5.6	5.9	6.7	6.9	7.1	7.4	7.0	6.8	7.4	6.0	

Note: corrected for discards.

Table 4-4.5. Estimated number of harvested and discarded chub in gill nets in assessment area LH06 (subarea of management area 4-4).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	N
3	391	0	0	0	3953	357	484	287	813	0	0	O
4	11282	13710	3470	287	991	12258	5762	3840	3548	635	597	T
5	27564	85853	57901	14660	12217	15989	37301	31012	34029	8949	5479	
6	20633	153753	106405	84791	71575	74671	60878	110054	93992	36526	13295	A
7	7955	35908	50441	98468	212550	168134	131325	97677	114656	60144	23334	V
8	11590	27421	12562	50325	89781	152669	162137	146797	66737	40386	20261	A
9	1977	8487	5947	10531	27713	39077	86354	80307	31699	15722	7214	I
10	0	0	1101	3038	6056	5198	30673	38663	6043	6113	840	L
11	0	653	0	1452	0	0	4757	5311	3949	1123	628	A
12	268	980	0	0	0	0	1666	1327	0	0	0	B
13	0	0	0	0	0	240	0	1327	0	0	0	L
>13	0	0	0	0	0	0	0	0	0	0	0	E
Mean												
Age	--	6.0	6.0	6.8	7.1	7.1	7.4	7.2	7.0	7.2	7.3	

Note: corrected for discards.

Table 4-4.6. CPUE-at-age (number/km) of harvested and discarded chub in gill nets in assessment area LH05 (subarea of management area 4-4).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N	N
2	0.0	0.0	0.0	2.9	0.0	0.0	1.3	0.0	0.0	0.0	O	O
3	6.4	28.3	1.1	0.0	3.3	2.0	2.8	0.0	1.4	0.0	T	T
4	33.3	146.9	2.3	0.0	2.7	16.8	18.8	7.9	10.2	0.0		
5	156.6	311.1	172.4	47.5	32.3	22.0	51.5	77.1	92.4	22.1	A	A
6	132.2	247.8	400.0	356.5	110.3	118.8	182.7	158.2	224.5	120.9	V	V
7	132.5	109.2	119.9	252.1	394.3	272.1	288.7	176.3	231.5	247.3	A	A
8	42.9	17.9	32.2	157.1	152.1	261.1	254.7	142.5	164.8	254.9	I	I
9	9.4	2.8	0.0	17.4	49.7	73.5	114.8	58.8	60.8	95.8	L	L
10	2.5	1.5	0.0	0.0	2.9	13.8	32.2	22.6	14.1	6.1	A	A
11	0.0	0.0	0.0	4.9	0.0	1.1	9.6	2.5	2.9	6.1	B	B
12	0.0	0.0	0.0	4.9	0.0	0.0	1.8	0.0	0.0	0.0	L	L
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	E	E
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

Note: corrected for discards.

Table 4-4.7. CPUE-at-age-(number/km) for harvested and discarded chub in gill nets in assessment area LH06 (subarea of management area 4-4).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N	N
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	O	O
3	1.5	0.0	0.0	0.0	7.4	0.6	0.8	0.8	1.6	0.0	T	T
4	42.0	18.7	10.3	0.9	1.9	21.8	9.2	10.0	7.0	2.7		
5	102.5	116.8	171.6	47.6	23.0	28.4	59.5	80.5	66.9	37.7	A	A
6	76.8	209.2	315.4	275.1	134.7	132.6	97.1	285.8	184.7	153.8	V	V
7	29.6	48.9	149.5	319.5	399.9	298.6	209.5	253.7	225.3	253.2	A	A
8	43.1	37.3	37.2	163.3	168.9	271.1	258.7	381.2	131.1	170.0	I	I
9	7.4	11.6	17.6	34.2	52.1	69.4	137.8	208.6	62.3	66.2	L	L
10	0.0	0.0	3.3	9.9	11.4	9.2	48.9	100.4	11.9	25.7	A	A
11	0.0	0.9	0.0	4.7	0.0	0.0	7.6	13.8	7.8	4.7	B	B
12	1.0	1.3	0.0	0.0	0.0	0.0	2.7	3.5	0.0	0.0	L	L
13	0.0	0.0	0.0	0.0	0.0	0.4	0.0	3.5	0.0	0.0	E	E
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

Note: corrected for discards 1989 onward

YELLOW PERCH

- Quota was 9,164 kg (Figure 4-4.15).
- No harvest occurred in 1998 (Figure 4-4.15).
- Index fishing revealed that the majority of recent year-classes were of very low abundance (Figure 4-4.20).
- Yellow perch abundance in this area is greatly reduced relative to past years. Low commercial catches and year-class strengths in recent years indicate that abundance will likely not increase in 1999.

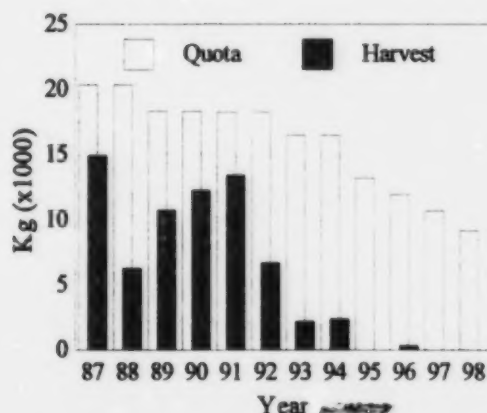


Figure 4-4.15. Yellow perch quota and harvest (kg) for management area 4-4.

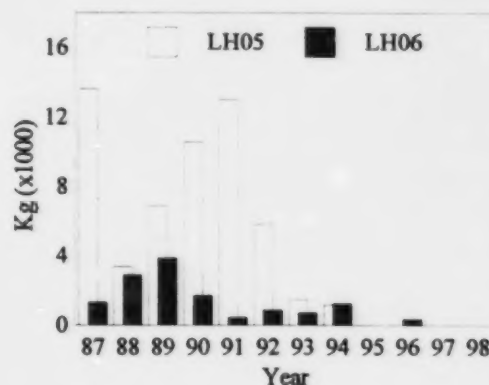


Figure 4-4.16. Yellow perch harvest (kg) by subarea for management area 4-4.

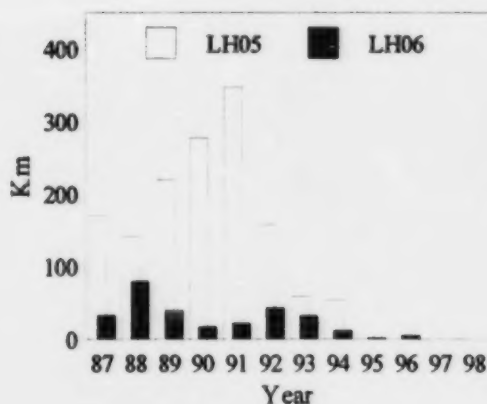


Figure 4-4.17. Yellow perch gill net effort (km) by subarea for management area 4-4.

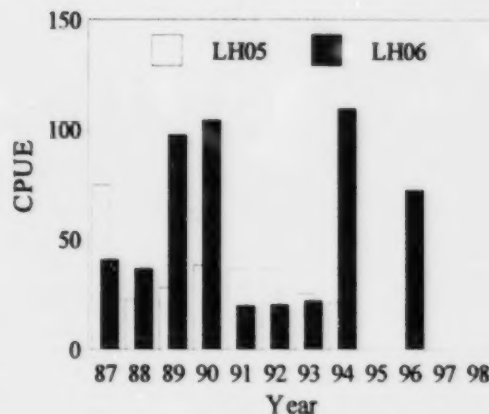


Figure 4-4.18. Yellow perch gill net CPUE (kg/km) by subarea for management area 4-4.

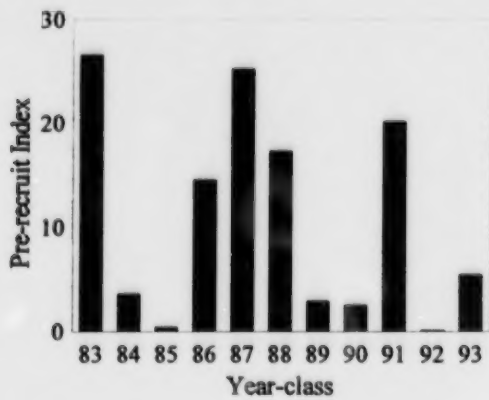


Figure 4-4.19. Indices of year-class strength for yellow perch from index gillnetting in management area 4-4, using multi-filament nets.

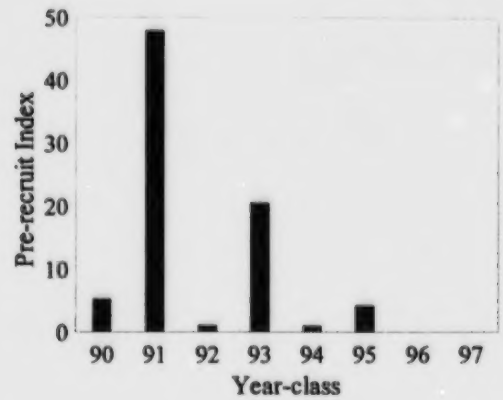


Figure 4-4.20. Indices of year-class strength for yellow perch from index gillnetting in management area 4-4, using monofilament nets.

LAKE TROUT/BACKCROSS

- Quota was 2,006 kg (Figure 4-4.21). An additional allowance of 5,992 kg was available to the fishery for a total allowable harvest of 7,998 kg.
- Total harvest decreased 44% to 8,478 kg, 423% of the quota (Figure 4-4.21) and 106% of the total allowable catch.

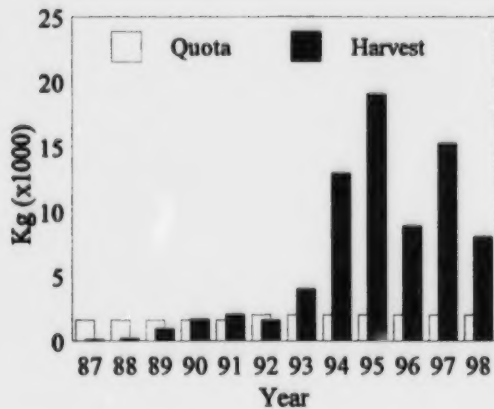


Figure 4-4.21. Lake trout/backcross quota and harvest (kg) for management area 4-4.

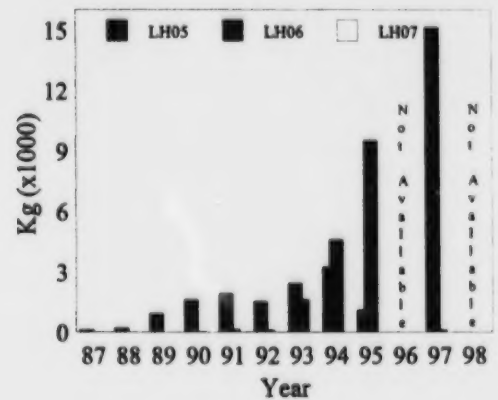


Figure 4-4.22. Lake trout/backcross harvest (kg) by subarea for management area 4-4.

MANAGEMENT AREA 4-5

GENERAL

- Quota issued on commercial fishing licences was 1,703,935 kg including a lake trout allowance of 3,732 kg (Table 4-5.1).
- Harvest of all fish species under quota control increased 3% to 1,423,467 kg. Estimated value of the harvest of species under quota control increased 4% to \$3,856,109.
- Harvest and estimated value of all fish species sold was 1,458,829 kg and \$3,872,082, respectively.
- An additional 7,364 kg of fish of no commercial value was reported caught.

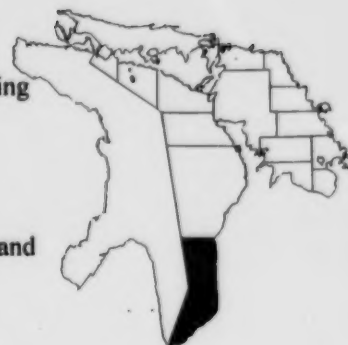


Table 4-5.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 4-5 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	46,955	12,932	27.5	12,932	13,983
Chub	136,549	1,922	1.4	1,922	3,400
Lake Sturgeon	4,240	3,432	80.9	4,005	21,128
Lake Trout	40,406	34,257	84.8	34,797	61,725
Lake Whitefish	1,207,067	1,163,052	96.4	1,163,052	2,568,185
Northern Pike	227	0	0.0	0	0
Walleye	123,697	87,147	70.5	93,244	381,289
Yellow Perch	144,794	120,725	83.4	120,879	806,399
American Eel		3		3	7
Burbot		4		4	0
Common Carp		59		59	12
Freshwater Drum		30,369		30,369	13,343
Gizzard Shad		782		782	343
Redfin Sucker		3,716		3,716	1,637
Rock Bass		21		21	35
Round Whitefish		40		40	52
Smallmouth Bass		4		4	5
Suckers		32		32	14
White Bass		314		314	504
White Perch		18		18	21
Total	1,703,935	1,458,829		1,466,193	3,872,082

LAKE WHITEFISH

- The quota issued was 1,207,067 kg.
- The harvest increased 8% to 1,163,052 kg, 96% of the quota (Figure 4-5.1). The gill net fishery accounted for 95% of the harvest with the remainder coming out of the trap net fishery (Figure 4-5.2).
- Gill net effort increased 16% to 2,967 km (Figure 4-5.3). Trap net effort reported decreased 47% to 65 net lifts.
- CPUE in the gill net fishery decreased by 2% to 373 kg/km (Figure 4-5.4) while trap net CPUE decreased 4% to 743 kg/net lift.
- Seven and eight year old fish dominated the harvest with increased contribution by 9 year olds and a notable decrease in 6 year olds. The mean age of the catch continued to increase (Tables 4-5.2,4-5.3).
- Abundance was almost unchanged in 1998 due to the weak 1992 year-class being offset by more abundant year-classes (Tables 4-5.5,4-5.6; Figure 4-5.6).
- Exploitable biomass is not expected to change noticeably in 1999 (Figure 4-5.7) as the weak 1992 year-class moves through the fishery and is followed by several more abundant year-classes (Figures 4-5.5,4-5.6).

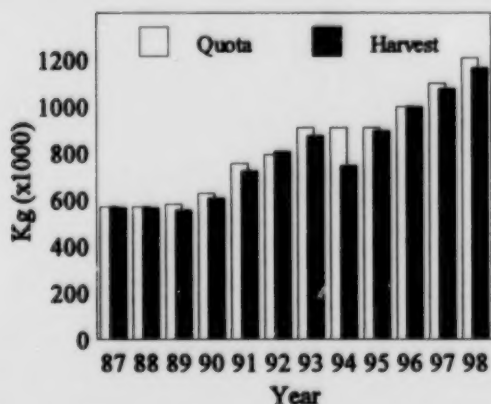


Figure 4-5.1 Lake whitefish quota and harvest (kg) for management area 4-5.

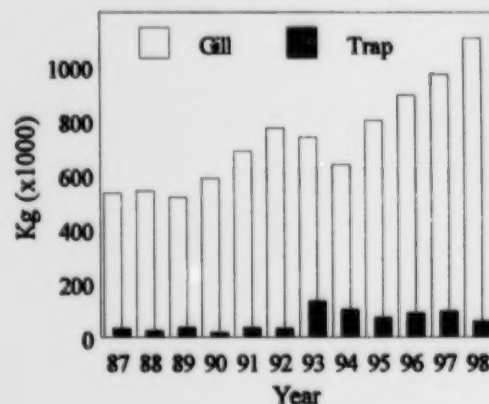


Figure 4-5.2. Lake whitefish harvest (kg) for management area 4-5.

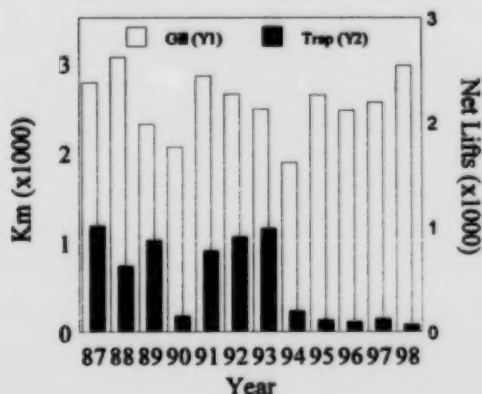


Figure 4-5.3. Lake whitefish gill net (km) and trap net (nets) effort for management area 4-5.

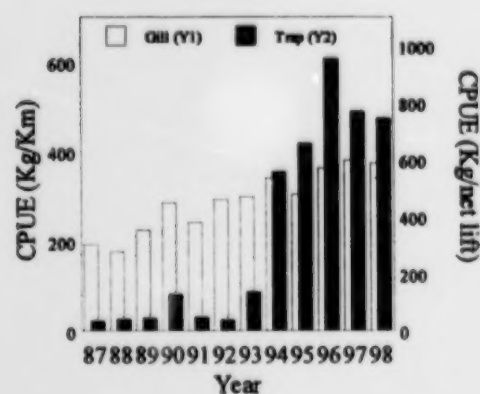


Figure 4-5.4. Lake whitefish CPUE for management area 4-5.

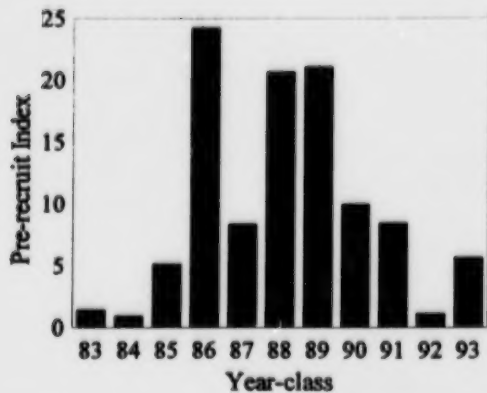


Figure 4-5.5. Indices of year-class strength for lake whitefish from index gillnetting in management area 4-5, using multi-filament nets.

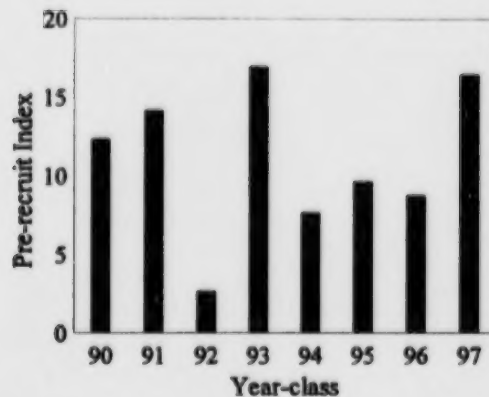


Figure 4-5.6. Indices of year-class strength for lake whitefish from index gillnetting in management area 4-5, using monofilament nets.

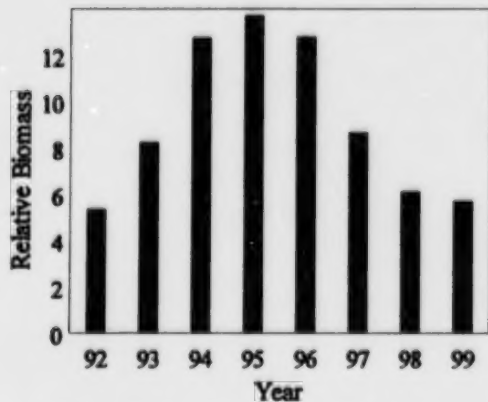


Figure 4-5.7. Exploitable biomass of lake whitefish (ages 4-10) in management area 4-5.

Table 4-5.2. Estimated number of lake whitefish harvested in gill nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	82	0	358	0	0	0	0	0	0	0
2	14478	40854	6367	8162	1200	447	0	0	124	0	0	0
3	52500	92502	144943	74977	123214	41594	10696	3625	717	191	0	0
4	65232	52884	54603	159086	71250	199357	302459	83002	22515	13441	6233	2724
5	185180	46242	32589	36083	122220	62849	136418	207767	193700	101045	56325	22511
6	33156	90621	28191	16979	29571	91879	33442	81122	246396	256764	193063	68241
7	16375	16090	62224	22812	18882	36185	37470	32249	75754	151926	272008	206509
8	4573	10970	13677	44608	28888	24120	16408	19387	33121	59706	122827	275257
9	3273	3528	7158	15065	34724	25939	11120	16147	17872	20344	40895	129364
10	86	1241	2579	9176	8076	18774	9579	8164	9866	9017	13000	58416
11	764	78	545	2231	2185	3982	6284	4447	5945	5348	5946	11548
12	43	308	0	1151	358	722	400	1814	2308	2306	1574	5598
13	0	149	222	0	179	0	0	673	985	378	491	1160
>13	0	0	222	133	179	0	104	0	0	0	0	0
Mean Age	4.4	4.9	4.7	4.7	5.1	5.4	5.2	5.5	6.0	6.5	6.9	7.9

Table 4-5.3. Estimated number of lake whitefish harvested in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	3824	10107	19332	3940	7193	7409	234	403	1163	0	0	0
4	4894	2853	2180	5319	5738	12666	63933	14923	9587	5782	254	0
5	10367	1398	1090	591	4157	1970	27133	37529	21791	23544	7601	1541
6	1640	3319	975	158	1870	2363	7778	12979	13083	19215	35541	3084
7	885	504	3500	118	561	1129	4488	5532	4218	7760	24023	10794
8	383	317	458	1182	1475	933	3873	2723	1986	3412	7305	15419
9	0	112	1032	158	2141	679	1940	1160	1439	2629	1312	3854
10	0	0	115	236	436	185	1666	1657	1178	1002	509	2313
11	0	38	0	79	332	76	1616	663	646	313	764	771
12	40	0	0	0	0	92	0	166	0	157	529	0
13	0	0	0	0	0	16	0	0	162	0	0	0
>13	0	0	0	39	0	0	0	0	0	0	0	0
Mean Age	4.5	--	4.1	4.5	5.2	4.5	5.1	5.5	5.5	5.9	6.6	7.4

Table 4-5.4. Estimated number of harvested and released lake whitefish caught in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	0
2	10007	17286	6278	4057	9558	9381	0	0	1185	355	0	0
3	12853	16566	36302	10466	44134	99895	37167	13389	5811	2586	2268	0
4	5028	2853	2180	5319	6065	15829	105309	89412	21945	15781	10584	3196
5	10367	1398	1090	591	4157	1970	28209	41956	36416	34887	12138	9849
6	1640	3319	975	158	1870	2363	7802	12979	14286	22666	38924	4362
7	885	504	3500	118	561	1129	4788	5532	4218	7760	24570	10794
8	383	317	458	1182	1475	933	3873	2723	1986	3412	7305	15419
9	0	112	1032	158	2141	679	1940	1160	1439	2629	1312	3854
10	0	0	115	236	436	185	1666	1657	1178	1002	509	2313
11	0	38	0	79	332	76	1616	663	646	313	764	771
12	40	0	0	0	0	92	0	166	0	157	529	0
13	0	0	0	0	0	16	0	0	162	0	0	0
>13	0	0	0	39	0	0	0	0	0	0	0	0
Mean Age	4.1	—	3.7	4.0	4.6	4.1	4.7	5.1	5.1	5.5	6.0	6.6

Table 4-5.5. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	5.2	13.4	2.8	4.0	0.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0
3	18.9	30.2	62.7	36.5	44.1	15.2	4.3	1.9	0.3	0.1	0.0	0.0
4	23.5	17.3	23.6	77.4	25.5	72.8	122.1	44.1	8.5	5.5	2.4	0.9
5	66.8	15.1	14.1	17.6	43.8	23.0	55.1	110.3	73.5	41.0	22.1	7.7
6	12.0	29.6	12.2	8.3	10.6	33.6	13.5	43.1	93.5	104.2	75.6	23.3
7	5.9	5.3	26.9	11.1	6.8	13.2	15.1	17.1	28.8	61.7	106.5	70.4
8	1.7	3.6	5.9	21.7	10.3	8.8	6.6	10.3	12.6	24.2	48.1	93.9
9	1.2	1.2	3.1	7.3	12.4	9.5	4.5	8.6	6.8	8.3	16.0	44.1
10	0.1	0.4	1.1	4.5	2.9	6.9	3.9	4.3	3.7	3.7	5.1	20.0
11	0.3	0.1	0.2	1.1	0.8	1.5	2.5	2.4	2.3	2.2	2.3	3.9
12	0.1	0.1	0.0	0.6	0.1	0.3	0.2	1.0	0.9	0.9	0.6	1.9
13	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.4	0.4	0.2	0.2	0.4
>13	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0

Table 4-5.6. CPUE-at-age (number/net lift) for lake whitefish harvested in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3.8	16.2	22.1	26.6	9.4	8.5	0.2	2.1	10.5	0.0	0.0	0.0
4	4.9	4.6	2.5	35.9	7.5	14.6	65.0	76.5	86.4	62.2	2.1	0.0
5	10.3	2.2	1.3	4.0	5.4	2.3	27.6	192.5	196.3	253.2	61.8	23.7
6	1.6	5.3	1.1	1.1	2.4	2.7	7.9	66.6	117.9	206.6	289.0	47.5
7	0.9	0.8	4.0	0.8	0.7	1.3	4.6	28.4	38.0	83.4	195.3	166.1
8	0.4	0.5	0.5	8.0	1.9	1.1	3.9	14.0	17.9	36.7	59.4	237.2
9	0.0	0.2	1.2	1.1	2.8	0.8	2.0	6.0	13.0	28.3	10.7	59.3
10	0.0	0.0	0.1	1.6	0.6	0.2	1.7	8.5	10.6	10.8	4.1	35.6
11	0.0	0.1	0.0	0.5	0.4	0.1	1.6	3.4	5.8	3.4	6.2	11.9
12	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.0	1.7	4.3	0.0
13	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	0.0	0.0	0.0
>13	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4-5.7. CPUE-at-age (number/net lift) for harvested and released lake whitefish caught in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	9.9	27.6	7.2	27.4	12.4	10.8	0.0	0.0	10.7	3.8	0.0	0.0
3	12.7	26.5	41.6	70.7	57.4	114.8	37.8	68.7	52.4	27.8	18.4	0.0
4	5.0	4.6	2.5	35.9	7.9	18.2	107.1	458.5	197.7	169.7	86.1	49.2
5	10.3	2.2	1.3	4.0	5.4	2.3	28.7	215.2	328.1	375.1	98.7	151.5
6	1.6	5.3	1.1	1.1	2.4	2.7	7.9	66.6	128.7	243.7	316.5	67.1
7	0.9	0.8	4.0	0.8	0.7	1.3	4.9	28.4	38.0	83.4	199.8	166.1
8	0.4	0.5	0.5	8.0	1.9	1.1	3.9	14.0	17.9	36.7	59.4	237.2
9	0.0	0.2	1.2	1.1	2.8	0.8	2.0	6.0	13.0	28.3	10.7	59.3
10	0.0	0.0	0.1	1.6	0.6	0.2	1.7	8.5	10.6	10.8	4.1	35.6
11	0.0	0.1	0.0	0.5	0.4	0.1	1.6	3.4	5.8	3.4	6.2	11.9
12	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.0	1.7	4.3	0.0
13	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	0.0	0.0	0.0
>13	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CHUB

- Quota issued was 136,549 kg.
- Harvest decreased 97% to 1,922 kg, 1% of the quota (Figure 4-5.8).
- Effort decreased 94% to 26 km (Figure 4-5.9).
- CPUE (harvest + discards) decreased 5% to 176 kg/km (Figure 4-5.10).
- Age 5, 6 and 7 fish made up the bulk of the catch (Table 4-5.8).
- Index fishing indicated that the 1992 to 1994 year-classes are weaker than average (Figure 4-5.12).
- Abundance of harvested plus discarded chub was almost unchanged in 1998, but CPUE of harvested fish was much lower for the second year in a row (Appendix 1, Table A1.12)
- Overall abundance is expected to decline in 1999 as the fishery will be dependent on fewer, younger year-classes than previously.

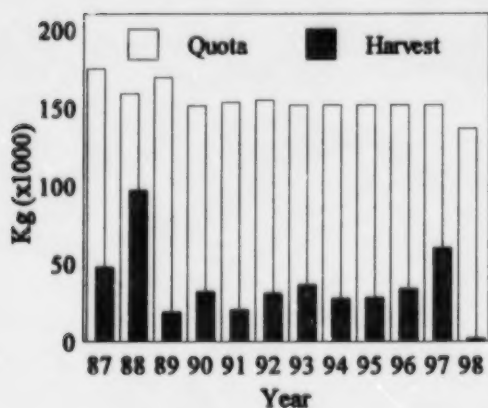


Figure 4-5.8. Chub quota and harvest (kg) for management area 4-5.

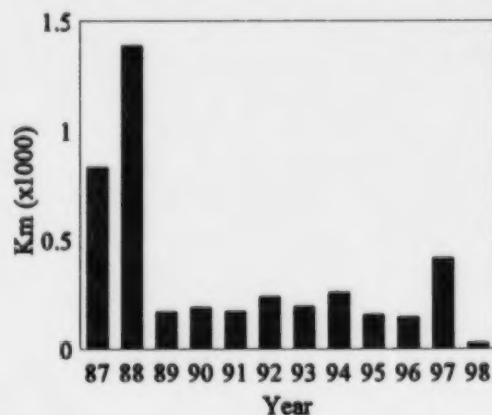


Figure 4-5.9. Chub gill net effort (km) for management area 4-5.

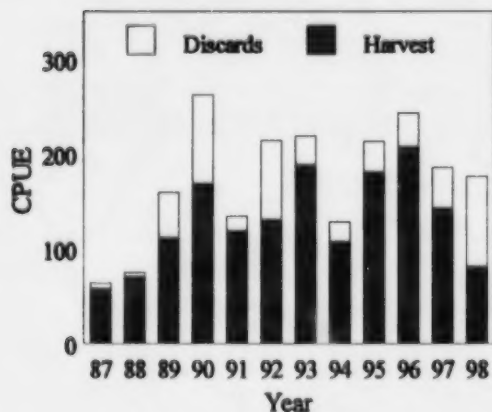


Figure 4-5.10. Chub (harvest+discards) gill net CPUE (kg/km) for management area 4-5. CPUE corrected for discards.

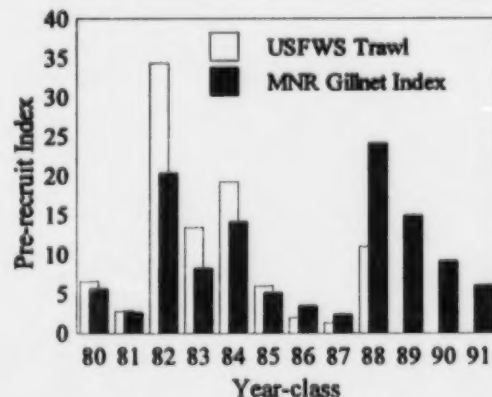


Figure 4-5.11. Indices of year-class strength for chub in management area 4-5 (multi-filament gill nets).

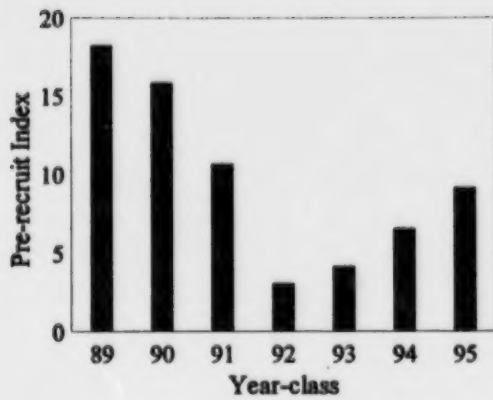


Figure 4-5.12. Indices of year-class strength for chub from index gillnetting in management area 4-5, using monofilament nets.

Table 4-5.8. Estimated number of harvested and discarded chub in gill nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	524	0	0	80	1673	0
3	8098	3553	269	2048	1161	1356	1048	1179	1960	1435	10087	0
4	19775	57228	2794	6143	2323	2034	2922	4935	14524	8136	29067	3185
5	65948	148592	22974	9379	5503	3776	13383	14612	28553	26206	50967	12385
6	83825	259602	61298	74638	36542	17622	42140	29751	51820	59406	95379	7448
7	62529	114200	45424	119025	51074	32216	59897	49584	59368	55962	142239	5200
8	32084	35610	11756	50199	22205	36344	52826	49235	34461	45585	77041	533
9	9476	6874	6172	19948	3180	19900	25168	24246	12315	18702	28033	177
10	694	1820	440	0	0	2415	8093	4405	1957	6334	9839	0
11	938	1163	0	0	0	0	1041	1086	0	0	1667	0
12	126	698	314	0	0	0	0	403	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	1667	0
>13	0	0	0	0	0	0	0	0	0	0	0	0
Mean												
Age	6.4	5.9	6.5	6.7	6.8	7.8	7.5	7.3	6.5	6.4	6.8	6.1

Note: corrected for discards.

Table 4-5.9. CPUE-at-age (number/km) for harvested and discarded chub in gill nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.6	4.0	0.0
3	9.8	2.6	1.6	10.9	7.0	11.5	5.4	4.6	12.6	10.0	24.4	0.0
4	23.8	41.3	16.5	32.6	13.9	17.2	15.1	19.2	93.5	56.7	70.2	144.8
5	79.4	107.3	136.0	49.7	33.0	32.0	69.2	56.9	183.7	182.6	123.1	563.0
6	100.9	187.4	362.9	395.8	218.3	149.3	218.0	115.9	333.4	413.8	230.4	338.6
7	75.3	82.4	268.9	631.1	306.6	273.0	309.9	193.1	382.0	389.8	343.5	236.4
8	38.6	25.7	69.6	206.2	133.3	308.0	273.3	191.7	221.7	317.6	186.1	24.2
9	11.4	5.0	36.5	105.8	19.1	168.6	130.2	94.4	79.2	130.3	67.7	8.1
10	0.8	1.3	2.6	0.0	0.0	20.5	41.9	17.2	12.6	44.1	23.8	0.0
11	1.1	0.8	0.0	0.0	0.0	0.0	5.4	4.2	0.0	0.0	4.0	0.0
12	0.2	0.5	1.9	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: corrected for discards.

YELLOW PERCH

- Quota issued was 144,794 kg.
- Harvest increased 50% to 120,725 kg, 83% of the quota (Figure 4-5.13). The majority of the harvest (88%) came from the gill net fishery (Figure 4-5.14).
- Gill net effort increased 27% to 2,151 km (Figure 4-5.15).
- Gill net CPUE increased 11% to 50 kg/km (Figure 4-5.16).
- The catch was made up of predominately age 3 and 4 year old fish (Tables 4-5.10,4-5.11).
- Abundance increased in 1998 as the strong 1994 and 1995 year-classes made up most of the harvest (Figure 4-5.18).
- Abundance is expected to decline somewhat in 1999 as the fishery continues to harvest the 1994 and 1995 cohorts which are followed by a much weaker 1996 year-class (Figure 4-5.18).

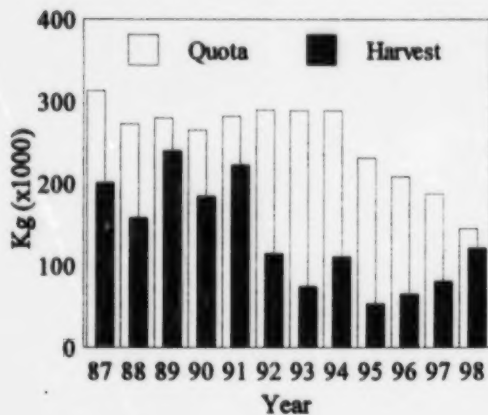


Figure 4-5.13. Yellow perch quota and harvest (kg) for management area 4-5.

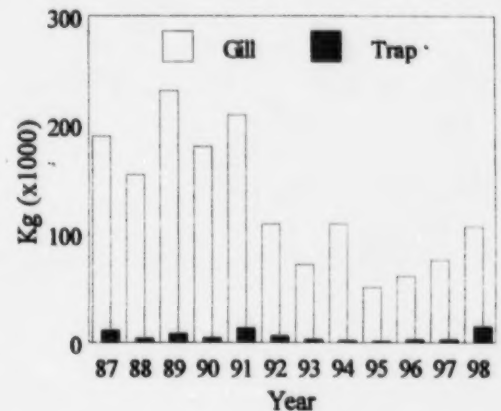


Figure 4-5.14. Yellow perch harvest (kg) for management area 4-5.

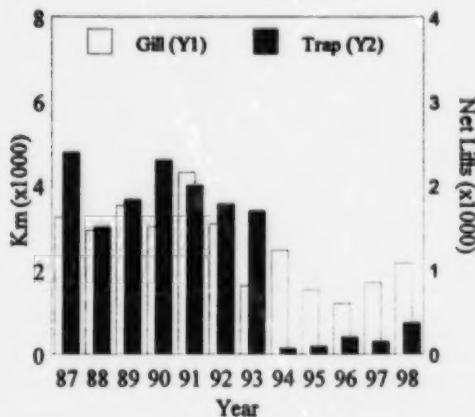


Figure 4-5.15. Yellow perch effort for management area 4-5.

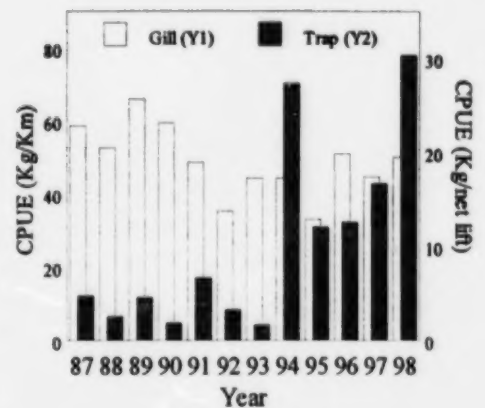


Figure 4-5.16. Yellow perch harvest CPUE for management area 4-5.

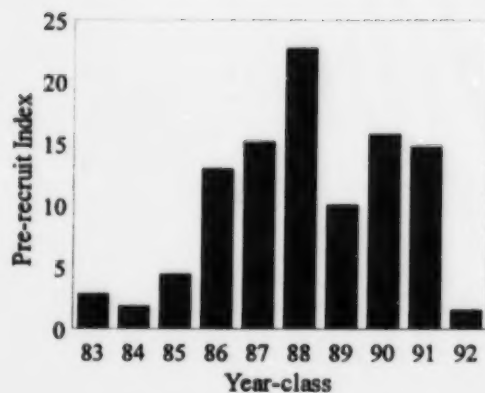


Figure 4-5.17. Indices of year-class strength for yellow perch from index gillnetting in management area 4-5, using multi-filament nets.

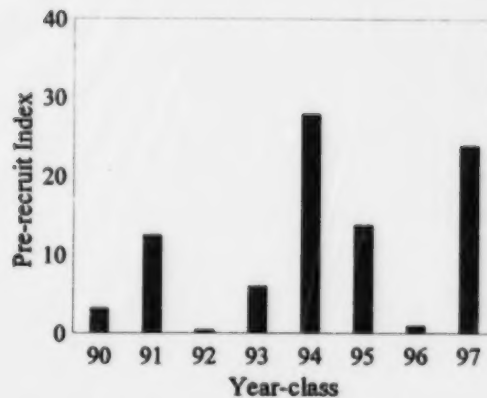


Figure 4-5.18. Indices of year-class strength for yellow perch from index gillnetting in management area 4-5, using monofilament nets.

Table 4-5.10. Estimated number of yellow perch harvested in gill nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	998	0	0	0	0
2	7281	26778	97921	73518	124309	26123	104405	7119	193845	60367	19532	7846
3	104651	485360	1499624	765091	1185385	504995	207278	751747	82454	355847	369469	466662
4	739238	443247	112601	574093	237446	337362	219888	65661	132047	31619	176923	327684
5	543132	265428	33860	14120	99406	17058	51647	15952	6978	16411	16018	50187
6	158854	57249	8531	7112	3782	13066	4934	5087	320	921	15531	982
7	15260	3602	6007	7176	4201	2412	4941	558	358	210	2856	0
8	1308	1972	1550	7288	1185	1331	1290	980	105	0	1882	0
9	693	0	1362	2581	1089	1567	708	186	70	210	1090	0
10	0	0	0	336	191	196	354	62	178	0	1090	0
11	0	134	0	282	0	196	179	0	0	96	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
>13	0	0	0	0	0	0	0	0	0	0	0	0
Mean Age	4.4	4.0	3.1	3.4	3.5	3.5	3.7	3.3	3.2	3.1	3.5	3.3

Table 4-5.11. Estimated number of yellow perch harvested in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0		0	0	0	0
2	745	81	1321	42	285	3012	4792	I	1275	0	378	490
3	2357	3352	25656	6274	30316	8742	5179	N	651	9937	9086	45494
4	17241	8432	7790	5273	20458	7000	2814	S	2446	1380	5538	31540
5	28070	4783	6264	813	19669	1862	543	U	767	1656	565	3487
6	12490	4776	1922	228	1057	2844	620	F	71	276	607	979
7	3237	1268	3317	305	990	1253	1154	I	33	0	156	0
8	2911	238	1572	42	352	564	293	C	11	0	37	0
9	0	0	242	102	1275	805	156	E	66	553	23	0
10	0	41	96	42	285	946	357	N	11	0	23	0
11	447	0	0	0	0	39	101	T	11	0	104	0
12	0	0	0	0	0	8	0	D	0	0	104	0
13	0	0	0	0	0	0	0	A	0	0	0	0
>13	0	0	0	0	0	0	0	T	0	0	0	0
Mean Age	4.9	4.6	4.2	4.0	4.4	4.2	3.7	A	4.0	3.6	4.1	3.4

Table 4-5.12. CPUE-at-age (number/km) for yellow perch harvested in gill nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
2	2.3	9.1	27.9	24.3	28.9	8.5	64.6	2.9	127.0	50.6	11.6	3.7
3	32.3	165.6	427.4	252.8	275.6	164.0	128.2	306.0	54.0	298.0	218.6	221.0
4	228.2	151.2	32.1	189.7	55.2	109.6	136.0	26.7	86.5	26.5	104.7	155.2
5	167.6	90.6	9.7	4.7	23.1	5.5	31.9	6.5	4.6	13.8	9.5	23.8
6	49.0	19.5	2.4	2.4	0.9	4.2	3.1	2.1	0.2	0.8	9.2	0.5
7	4.7	1.2	1.7	2.4	1.0	0.8	3.1	0.2	0.2	0.2	1.7	0.0
8	0.4	0.7	0.4	2.4	0.3	0.4	0.8	0.4	0.1	0.0	1.1	0.0
9	0.2	0.0	0.4	0.9	0.3	0.5	0.4	0.1	0.1	0.2	0.6	0.0
10	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.6	0.0
11	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4-5.13. CPUE-at-age (number/net lift) yellow perch harvested in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	I	0.0	0.0	0.0	0.0
2	0.1	0.1	0.2	0.1	0.1	1.7	2.8	N	19.9	0.0	2.6	1.4
3	0.2	0.9	3.2	2.7	15.2	4.9	3.1	S	10.2	50.7	61.8	126.4
4	1.6	2.2	1.0	2.3	10.3	3.9	1.7	U	38.2	7.0	37.7	87.6
5	2.5	1.3	0.8	0.4	9.9	1.1	0.3	F	12.0	8.5	3.8	9.7
6	1.1	1.3	0.2	0.1	0.5	1.6	0.4	I	1.1	1.4	4.1	2.7
7	0.3	0.3	0.4	0.1	0.5	0.7	0.7	C	0.5	0.0	1.1	0.0
8	0.3	0.1	0.2	0.1	0.2	0.3	0.2	I	0.2	0.0	0.3	0.0
9	0.0	0.0	0.0	0.1	0.6	0.5	0.1	E	1.0	2.8	0.2	0.0
10	0.0	0.1	0.1	0.1	0.1	0.5	0.2	N	0.2	0.0	0.2	0.0
11	0.1	0.0	0.0	0.0	0.0	0.0	0.1	T	0.2	0.0	0.7	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	D	0.0	0.0	0.7	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0
								A	0.0	0.0	0.0	0.0

WALLEYE

- Quota issued was 123,697 kg.
- Harvest decreased 8% to 87,147 kg, 71% of the quota (Figure 4-5.19). Trap nets produced 84% of the harvest (Figure 4-5.20).
- Trap net effort reported decreased 11% to 1,712 net lifts (Appendix 1, Table A1-14) while gill net effort increased 28% to 91 km.
- Trap net CPUE was unchanged at 43 kg/net lift (Figure 4-5.21) and gillnet CPUE decreased by 6% to 112 kg/km (Appendix 1, Table A1-14).
- Abundance did not appear to change greatly in 1998 due to the strength of the 1994 and 1996 year-classes offsetting the weak 1995 year-class (Tables 4-5.16,4-5.17).
- Mean age of the catch and harvest decreased in 1998 (Tables 4-5.14,4-5.15).
- Partnership index netting (Appendix 2, Table A2.3) along with the trap net CPUE (Figure 4-5.22) suggest that the 1995 and 1997 year-classes are weaker than the 1996 year-class.
- Exploitable biomass is not expected to change greatly overall in 1999 as the fishery will be largely dependent on the strong 1996 year-class as 3 year olds (Figure 4-5.23).

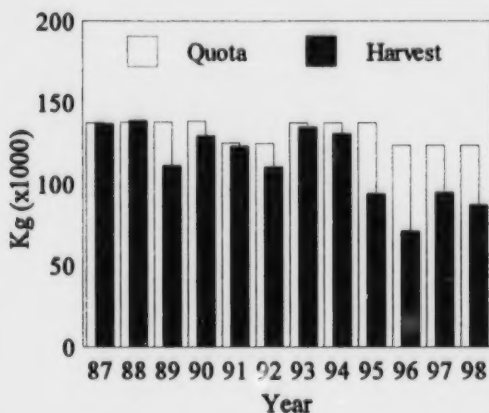


Figure 4-5.19. Walleye quota and harvest (kg) for management area 4-5.

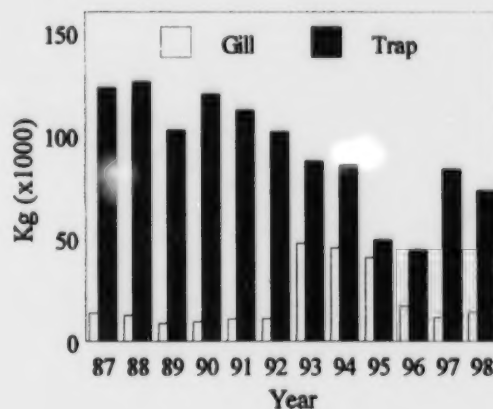


Figure 4-5.20. Walleye harvest (kg) for management area 4-5.

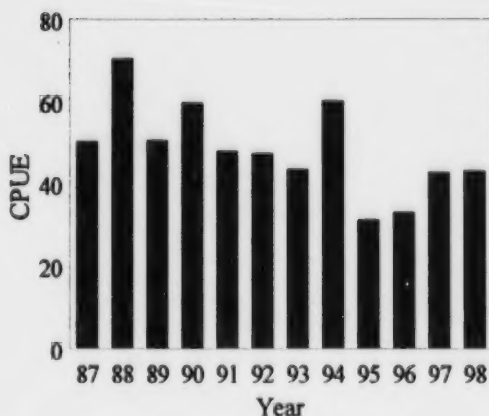


Figure 4-5.21. Walleye trap net CPUE (kg/net lift) for management area 4-5.

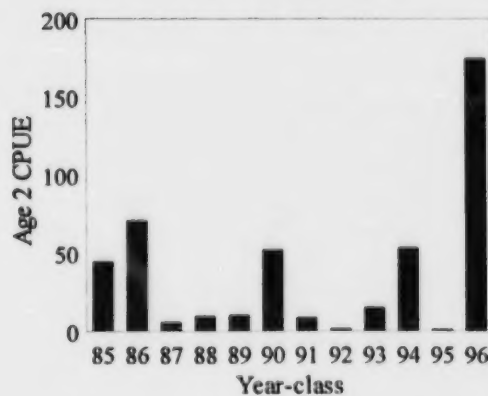


Figure 4-5.22. Age 2 walleye CPUE (#/net lift) from commercial trap nets in management area 4-5.

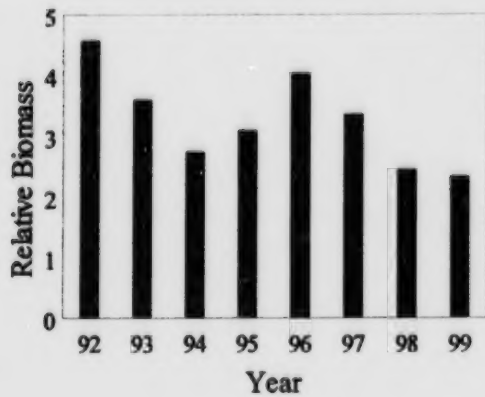


Figure 4-5.23. Exploitable biomass of walleye (ages 2-12) in management area 4-5.

Table 4-5.14. Estimated number of walleye harvested in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	293	1500	1785	276	4828	161	0	256	456	0	0	0
2	42270	29008	5082	11846	13446	72596	8833	1026	16311	26033	1095	32868
3	76358	53907	54242	15713	17196	11638	34796	23981	2717	25181	67561	6742
4	8790	42338	20321	46477	7456	6324	3636	16724	5881	2356	8464	46774
5	22012	6727	15578	12818	20636	1992	2783	2458	4103	1478	550	5226
6	2575	14480	2700	12141	10184	8270	4001	2495	1744	621	1750	785
7	2856	1556	7185	2130	8442	3846	5508	3407	1344	553	1756	2375
8	801	2548	2237	8757	1930	4041	4498	7601	1851	422	1276	1975
9	1159	693	1479	2484	5876	2840	3254	5045	2004	360	1410	952
10	621	668	362	1308	650	2297	2270	3867	2260	1325	1879	1186
11	158	160	623	581	237	1424	1752	1713	1879	621	2508	0
12	0	0	519	305	234	1139	554	1068	643	426	487	0
13	0	0	0	0	76	200	168	0	431	117	764	0
>13	0	0	0	0	0	0	95	0	200	117	243	0
Mean Age	3.4	3.6	4.1	4.5	4.9	3.2	4.4	5.0	4.7	3.3	4.0	3.6

Table 4-5.15. Estimated number of harvested and released walleye from trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	40781	2566	3904	855	12065	5630	656	985	1910	34	920	1477
2	108202	126290	10848	18596	22941	111356	16596	1874	23018	70755	1545	294072
3	93449	74903	59904	15784	17644	11967	35195	24761	2787	26770	68223	23413
4	9510	42338	20699	46588	7490	6418	3670	16743	5881	2429	8464	46774
5	22012	6727	15699	12818	20636	1992	2783	2458	4103	1478	550	5226
6	2575	16884	2700	12141	10184	8270	4001	2495	1744	621	1750	785
7	2856	1556	7185	2130	8442	3846	5508	3407	1344	553	1756	2375
8	801	2548	2237	8757	1930	4041	4498	7601	1851	422	1276	1975
9	1159	693	1479	2484	5876	2840	3254	5045	2004	360	1410	952
10	621	668	362	1308	650	2391	2270	3867	2260	1325	1879	1186
11	158	160	623	581	237	1424	1752	1713	1879	621	2508	0
12	0	0	519	305	234	1139	554	1068	643	426	487	0
13	0	0	0	0	76	200	168	0	431	117	764	0
>13	0	0	0	0	0	0	95	0	200	117	243	0
Mean Age	3.1	3.5	3.7	4.0	4.1	2.9	3.7	4.2	4.1	3.0	3.7	3.1

Table 4-5.16. CPUE-at-age for walleye harvested in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.1	0.8	0.9	0.1	2.1	0.1	0.0	0.2	0.3	0.0	0.0	0.0
2	17.2	16.2	2.5	5.9	5.7	33.6	4.4	0.7	10.4	19.4	0.6	19.5
3	31.1	30.1	26.7	7.8	7.3	5.4	17.3	16.8	1.7	18.8	35.2	4.0
4	3.6	23.6	10.0	23.0	3.2	2.9	1.8	11.7	3.7	1.8	4.4	27.7
5	9.0	3.8	7.7	6.4	8.8	0.9	1.4	1.7	2.6	1.1	0.3	3.1
6	1.1	8.1	1.3	6.0	4.3	3.8	2.0	1.8	1.1	0.5	0.9	0.5
7	1.2	0.9	3.5	1.1	3.6	1.8	2.7	2.4	0.9	0.4	0.9	1.4
8	0.3	1.4	1.1	4.3	0.8	1.9	2.2	5.3	1.2	0.3	0.7	1.2
9	0.5	0.4	0.7	1.2	2.5	1.3	1.6	3.5	1.3	0.3	0.7	0.6
10	0.3	0.4	0.2	0.7	0.3	1.1	1.1	2.7	1.4	1.0	1.0	0.7
11	0.1	0.1	0.3	0.3	0.1	0.7	0.9	1.2	1.2	0.5	1.3	0.0
12	0.0	0.0	0.3	0.2	0.1	0.5	0.3	0.8	0.4	0.3	0.3	0.0
13	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.3	0.1	0.4	0.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0

Table 4-5.17. CPUE-at-age (number/net lift) for harvested and released walleye in trap nets in management area 4-5.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	16.6	1.4	1.9	0.4	5.1	2.6	0.3	0.7	1.2	0.0	0.5	0.9
2	44.1	70.4	5.3	9.2	9.8	51.6	8.2	1.3	14.6	52.8	0.8	174.0
3	38.1	41.8	29.5	7.8	7.5	5.6	17.5	17.3	1.8	20.0	35.6	13.9
4	3.9	23.6	10.2	23.1	3.2	3.0	1.8	11.7	3.7	1.8	4.4	27.7
5	9.0	3.7	7.7	6.4	8.8	0.9	1.4	1.7	2.6	1.1	0.3	3.1
6	1.1	9.4	1.3	6.0	4.3	3.8	2.0	1.8	1.1	0.5	0.9	0.5
7	1.2	0.9	3.5	1.1	3.6	1.8	2.7	2.4	0.9	0.4	0.9	1.4
8	0.3	1.4	1.1	4.3	0.8	1.9	2.2	5.3	1.2	0.3	0.7	1.2
9	0.5	0.4	0.7	1.2	2.5	1.3	1.6	3.5	1.3	0.3	0.7	0.6
10	0.3	0.4	0.2	0.7	0.3	1.1	1.1	2.7	1.4	1.0	1.0	0.7
11	0.1	0.1	0.3	0.3	0.1	0.7	0.9	1.2	1.2	0.5	1.3	0.0
12	0.0	0.0	0.3	0.2	0.1	0.5	0.3	0.8	0.4	0.3	0.3	0.0
13	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.3	0.1	0.4	0.0
>13	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0

LAKE TROUT/BACKCROSS

- Quota issued was 36,674 kg. An additional temporary allowance of 3,732 kg was also available for a total allowable harvest of 40,406 kg.
- Harvest decreased to 34,257 kg, 93% of the quota and 85% of the total allowable harvest (Figure 4-5.24). Most of the harvest (90%) came from gill nets (Figure 4-5.25).

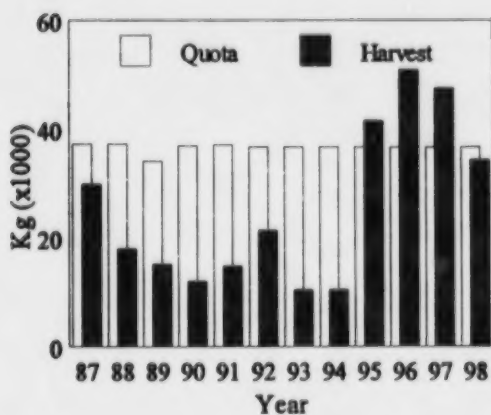


Figure 4-5.24. Lake trout/backcross quota and harvest (kg) for management area 4-5.

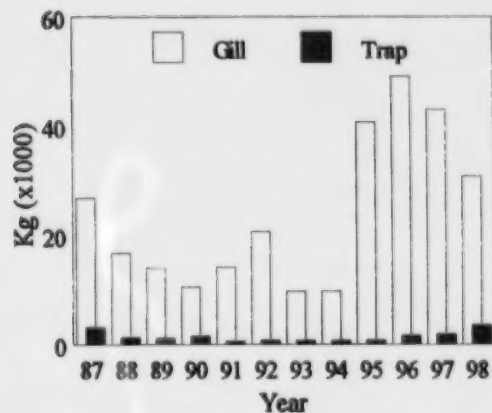


Figure 4-5.25. Lake trout/backcross harvest (kg) for management area 4-5.

MANAGEMENT AREA 4-7

GENERAL

- Total quota was 132,783 kg including a lake trout allowance of 185 kg (Table 4-7.1).
- Harvest of all fish species under quota control increased 147% to 47,214 kg (Table 4-7.1).



Table 4-7.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 4-7, in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	unlimited	0	0.0	0	0
Chub	53,227	7,707	14.5	7,707	16,990
Lake Sturgeon	0	0	0.0	0	0
Lake Trout	929	218	23.5	218	433
Lake Whitefish	76,979	39,289	51.0	39,289	97,011
Northern Pike	225	0	0.0	0	0
Walleye	425	0	0.0	0	0
Yellow Perch	882	0	0.0	0	0
Total	132,667	47,214		47,214	114,434

LAKE WHITEFISH

- Quota was 76,979 kg (Figure 4-7.1).
- The total estimated harvest increased 50% to 39,289 kg, 51% of the quota (Figure 4-7.1).
- Gill net effort was unavailable at time of printing.
- Fish of the 1990 and 1991 year-classes were the most abundant in the harvest in 1997 (Table 4-7.2). The mean age of harvested whitefish increased by almost one year from 1996 to 1997 (Table 4-7.2).
- Overall abundance is not expected to change greatly in 1999, as the about average strength 1991 through 1993 year-classes are likely to make up most of the catch (Figures 4-4.5,4-4.6).

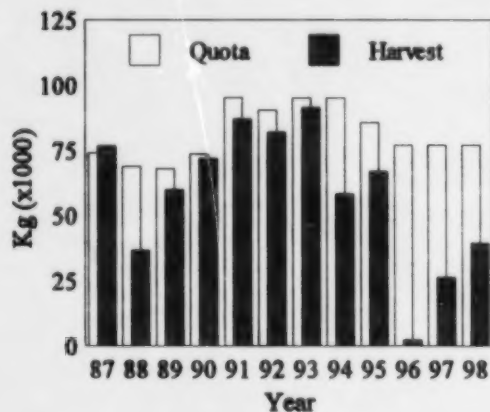


Figure 4-7.1. Lake whitefish quota and harvest (kg) for management area 4-7.

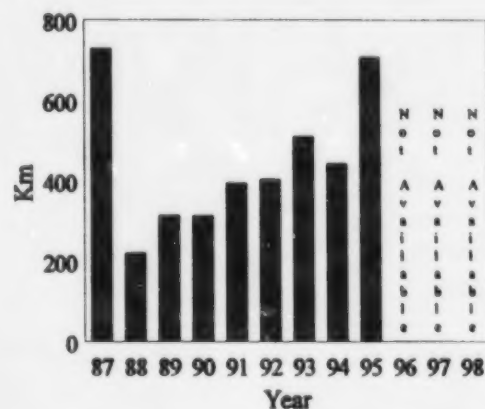


Figure 4-7.2. Lake whitefish annual gill net effort (km) for management area 4-7.

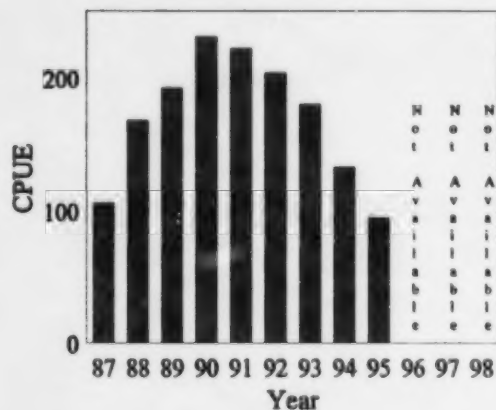


Figure 4-7.3. Lake whitefish gill net CPUE (kg/km) for management area 4-7.

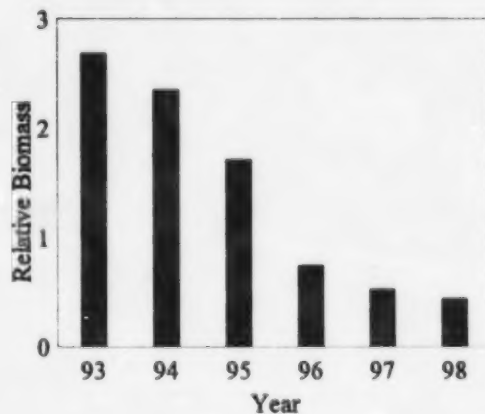


Figure 4-7.4. Exploitable biomass of whitefish (ages 4-10) in management area 4-7 to 1998.

Table 4-7.2. Estimated number of lake whitefish harvested in gill nets in management area 4-7.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	N
3	3275	5535	2564	0	1726	1668	2103	310	0	0	0	O
4	25361	6989	27519	20213	28745	12099	16974	4439	3661	36	89	T
5	18369	7461	7161	20213	23246	31855	25587	15820	23545	432	613	
6	4254	1818	1767	3032	8251	7451	14635	9770	13659	1054	6882	A
7	1423	718	1727	7075	2585	2155	4450	6379	5939	289	7720	V
8	566	498	245	0	134	502	1491	1833	2789	18	2732	A
9	420	139	245	0	1315	210	757	634	631	1	492	I
10	20	61	122	0	438	172	118	126	315	0	166	L
11	20	0	122	0	0	79	236	30	0	0	0	A
12	44	0	122	0	0	52	0	0	0	0	0	B
13	0	0	0	0	0	79	0	0	0	0	0	L
>13	0	0	0	0	0	0	0	0	0	0	0	E
Mean Age	4.6	4.5	4.5	4.9	4.6	5.0	5.2	5.7	5.7	5.8	6.7	

Table 4-7.3. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in management area 4-7.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N	N
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	O	O
3	12.0	7.6	11.7	0.0	4.4	4.1	4.1	0.7	0.0	0.0	T	T
4	92.6	9.6	125.7	64.8	73.2	30.0	33.4	10.1	5.2	2.9		
5	67.0	10.3	32.7	64.8	59.2	79.1	50.3	35.9	33.3	34.6	A	A
6	15.5	2.5	8.1	9.7	21.0	18.5	28.8	22.2	19.3	84.4	V	V
7	5.2	1.0	7.9	22.7	6.6	5.4	8.7	14.5	8.4	23.1	A	A
8	2.1	0.7	1.1	0.0	0.3	1.3	2.9	4.2	4.0	1.4	I	I
9	1.5	0.2	1.1	0.0	3.4	0.5	1.5	1.4	0.9	0.1	L	L
10	0.1	0.1	0.6	0.0	1.1	0.4	0.2	0.3	0.5	0.0	A	A
11	0.1	0.0	0.6	0.0	0.0	0.2	0.5	0.1	0.0	0.0	B	B
12	0.2	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	L	L
13	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	E	E
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

CHUB

- Quota was 53,227 kg (Figure 4-7.5).
- Harvest increased 35% to 7,707 kg, 15% of the final quota (Figure 4-7.5).
- Effort was unavailable at time of printing.
- No fish were sampled from the commercial catch in 1998.
- Abundance is expected to decline in 1999 as the weaker post 1990 year-classes begin to enter the fishery (Table 4-7.4).

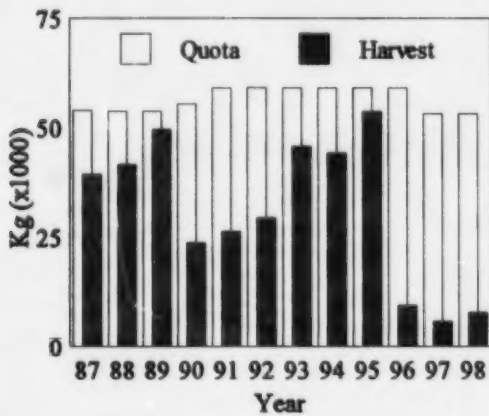


Figure 4-7.5. Chub quota and harvest (kg) for management area 4-7.

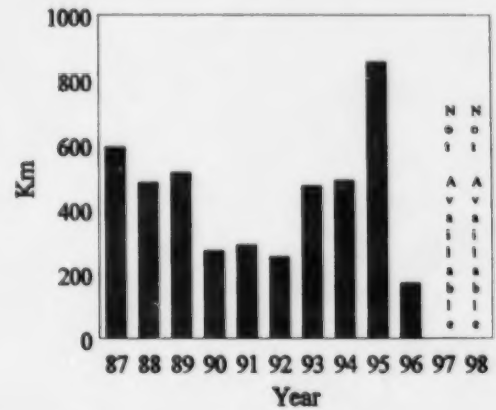


Figure 4-7.6. Chub gill net effort (km) for management area 4-7.

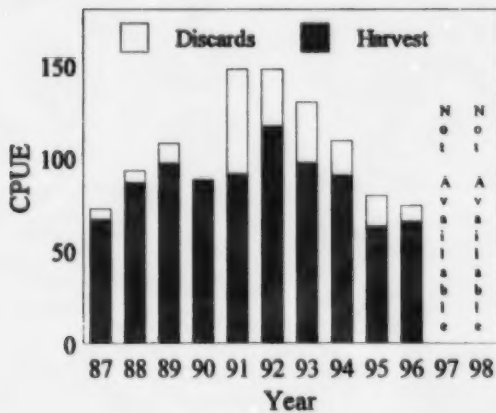


Figure 4-7.7. Chub (harvest+discards) gill net CPUE (kg/km) for management area 4-7. CPUE corrected for discards.

Table 4-7.4. Estimated number of harvested and discarded chub in gill nets in management area 4-7.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0		0	0	0	0	0	0		
2	0	0	0		0	0	0	0	0	0		
3	658	0	0		0	0	467	627	508	0		
4	15574	8568	4521	N	0	0	467	1509	6108	504	N	N
5	65130	58514	67272	O	8495	6352	8324	9828	28890	1108	O	O
6	50107	98383	97011		38044	18893	31433	47998	72878	7366		
7	62597	50403	67748	D	108137	72133	70403	61011	90769	18094	D	D
8	25722	23990	9575	A	40641	66233	94668	74551	90400	21707	A	A
9	15372	10784	0	T	10810	16569	46979	49197	47377	9816	T	T
10	2870	1433	0	A	1299	3666	20539	21946	13985	3590	A	A
11	301	0	0		0	696	3049	1804	4090	0		
12	603	0	0		0	0	1054	0	0	0		
13	187	0	0		0	0	0	0	405	0		
>13	0	0	0		0	0	0	0	0	0		
Mean Age	6.2	6.2	--		7.1	7.5	7.7	7.5	7.3	6.8		

Note: corrected for discards.

Table 4-7.5. CPUE-at-age (number/km) for harvested and discarded chub in gill nets in management area 4-7.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
2	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
3	1.1	0.0	0.0		0.0	0.0	1.0	1.3	0.6	0.0		
4	26.4	17.8	8.8	N	0.0	0.0	1.0	3.1	7.1	3.0	N	N
5	110.2	121.7	131.3	O	29.5	26.3	17.7	20.1	33.8	6.5	O	O
6	84.8	204.6	189.3		131.9	78.1	66.8	98.3	85.2	43.4		
7	105.9	104.8	132.2	D	375.0	298.3	149.6	125.0	106.2	106.7	D	D
8	43.5	49.9	18.7	A	140.9	273.9	201.1	152.7	105.7	128.0	A	A
9	26.0	22.4	0.0	T	37.5	68.5	99.8	100.8	55.4	57.9	T	T
10	4.9	3.0	0.0	A	4.5	15.2	43.6	44.9	16.4	21.2	A	A
11	0.5	0.0	0.0		0.0	2.9	6.5	3.7	4.8	0.0		
12	1.0	0.0	0.0		0.0	0.0	2.2	0.0	0.0	0.0		
13	0.3	0.0	0.0		0.0	0.0	0.0	0.0	0.5	0.0		
>13	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		

Note: corrected for discards.

GEORGIAN BAY



GENERAL

- Total quota (including lake trout and lake whitefish allowance) issued on commercial fishing licences and other allocations in Georgian Bay was 898,919 kg (Table 5.1).
- Harvest of all fish species under quota control increased 2% to 672,070 kg. Estimated value of the harvest of species under quota control decreased 3% to \$1,599,981.
- Total harvest and estimated value of all fish species was 687,438 kg and \$1,609,945 respectively (Table 5.1). An additional 40,727 kg of fish of no commercial value was reported caught.

Table 5.1. Quota, harvest, percent quota taken, catch, and estimated value by species for Georgian Bay in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	908	131	14.4	154	188
Chub	402,202	172,168	42.8	174,912	495,933
Lake Sturgeon	1,408	307	21.8	1,811	1,293
Lake Trout	28,175	81,930	290.8	88,030	114,790
Lake Whitefish	416,731	411,184	98.7	411,383	959,829
Northern Pike	3,721	366	9.8	414	383
Walleye	10,006	5,981	59.8	5,999	27,554
Yellow Perch	35,768	3	0.0	3	11
Brown Trout		0		20	0
Burbot		23		13,983	0
Chinook Salmon		238		1,406	0
Coho Salmon		0		12	0
Common Carp		103		1,482	54
Freshwater Drum		0		45	0
Lake Herring		6,259		6,520	4,630
Longnose Gar		0		99	0
Muskellunge		7		39	0
Pink Salmon		65		65	97
Rainbow Smelt		0		3	0
Rainbow Trout		7		33	0
Redfin Suckers		105		124	69
Round Whitefish		7,780		7,826	5,114
Smallmouth Bass		0		10	0
Suckers		781		13,048	0
White Bass		0		10	0
Other/Mixed		0		734	0
Total	898,919	687,438		728,165	1,609,945

MANAGEMENT AREA 5-1

GENERAL

- Quota issued on commercial fishing licences was 111,356 kg, including a lake trout allowance of 1,936 kg, and a lake whitefish allowance of 14,000 kg (Table 5-1.1).
- Harvest of all fish species under quota control increased 32% to 73,598 kg (Table 5-1.1). Estimated value of fish under quota control increased 21% to \$131,641.
- Harvest and estimated value of all species sold was 82,435 kg and \$137,401 respectively (Table 5-1.1). An additional 5 kg of fish of no commercial value was reported caught.

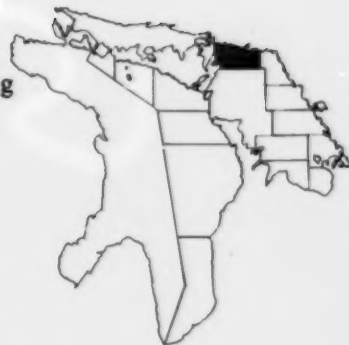


Table 5-1.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-1 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	0	0	0.0	0	0
Chub	17,052	8,068	47.3	8,068	19,569
Lake Sturgeon	637	2	0.3	2	10
Lake Trout	4,418	5,789	131.0	5,794	9,076
Lake Whitefish	73,747	58,521	79.4	58,521	99,463
Northern Pike	1,632	126	7.7	126	169
Walleye	1,971	1,092	55.4	1,092	3,354
Yellow Perch	11,899	0	0.0	0	0
Chinook Salmon		14		14	0
Common Carp		50		50	19
Lake Herring		1,078		1,078	676
Round Whitefish		7,695		7,695	5,065
Total	111,356	82,435		82,440	137,401

LAKE WHITEFISH

- The quota issued was 59,747 kg (Figure 5-1.1). An additional temporary allowance of 14,000 kg was available for a total allowable harvest of 73,747 kg.
- The harvest increased 33% to 58,521 kg, 98% of the quota and 79% of the total allowable harvest (Figure 5-1.1).
- Gill net effort increased 72% to 699 km (Figure 5-1.2).
- CPUE decreased 26% to 80 kg/km (Figure 5-1.3).
- A sample of 99 fish from the catch consisted of 1% 3 year olds, 8% 4 year olds, 27% 5 year olds, 5% 6 year olds, 32% 7 year olds, 18% 8 year olds, 4% 9 year olds, and 5% 10 year olds and older.
- Overall abundance is unlikely to change greatly in 1999. Age composition suggests strong 1991 and 1993 year-classes will continue to support this fishery.

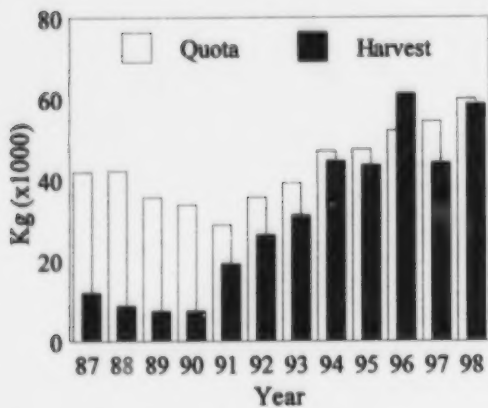


Figure 5-1.1. Lake whitefish quota and harvest (kg) for management area 5-1.

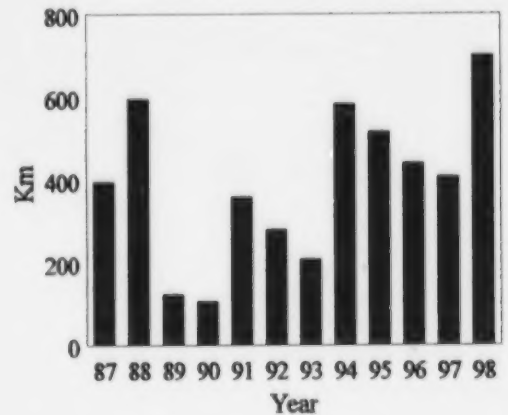


Figure 5-1.2. Lake whitefish gill net effort (km) for management area 5-1.

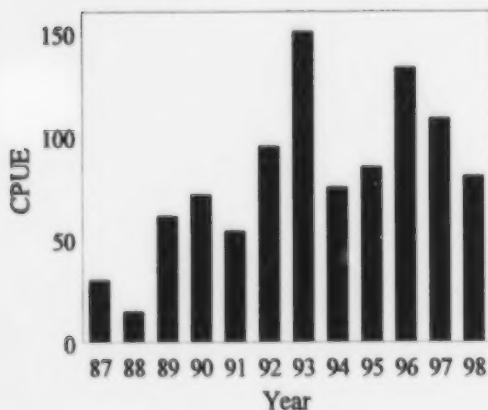


Figure 5-1.3. Lake whitefish gill net CPUE (kg/km) for management area 5-1.

CHUB

- The quota was 17,052 kg.
- The harvest increased 15% to 8,068 kg, 47% of the quota (Figure 5-1.4).
- Effort increased 4% to 168 km (Figure 5-1.5).
- CPUE (harvest) increased 23% to 49 kg/km (Figure 5-1.6).
- Available information suggests that no great change in abundance is likely in 1999.

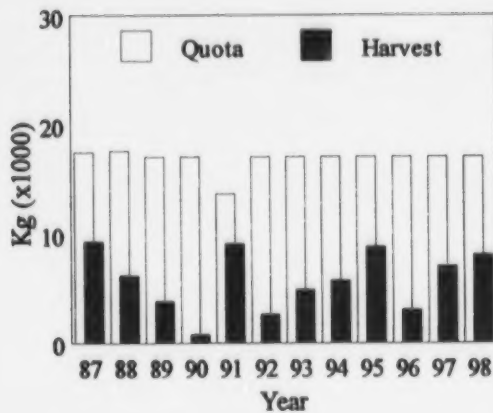


Figure 5-1.4. Chub quota and harvest (kg) for management area 5-1.

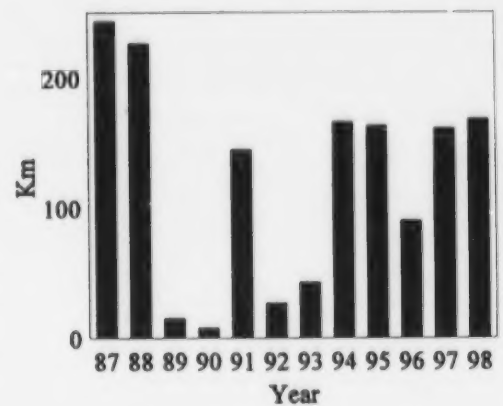


Figure 5-1.5. Chub gill net effort (km) for management area 5-1.

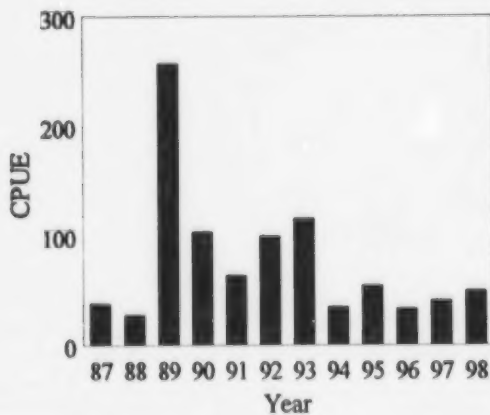


Figure 5-1.6. Chub gill net CPUE (kg/km) for management area 5-1.

YELLOW PERCH

- The quota was 11,899 kg.
- No targeted effort or harvest was reported in 1998 (Figures 5-1.8,5-1.9).
- Yellow perch abundance is greatly reduced in this area relative to past years.

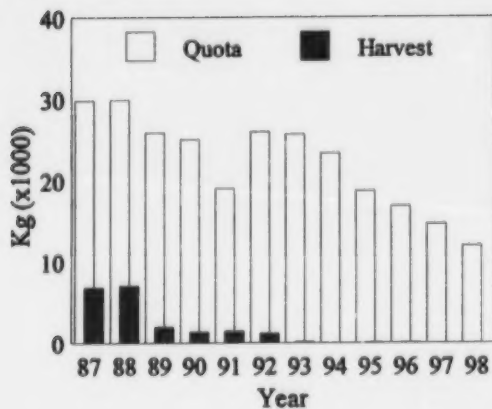


Figure 5-1.7. Yellow perch quota and harvest (kg) for management area 5-1.

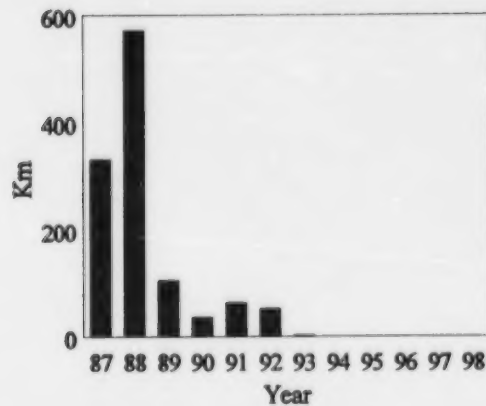


Figure 5-1.8. Yellow perch gill net effort (km) for management area 5-1.

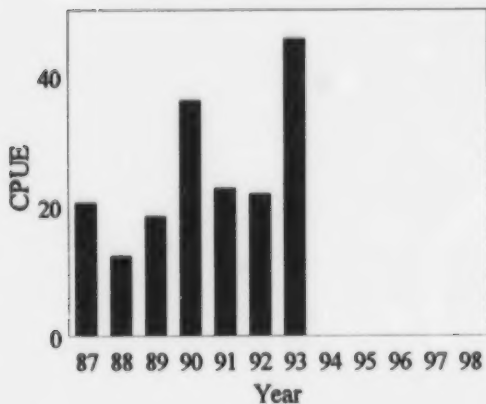


Figure 5-1.9. Yellow perch gill net CPUE (kg/km) for management area 5-1.

LAKE TROUT/BACKCROSS

- Quota was 2,482 kg. An additional lake trout allowance of 1,936 kg was also available to the fishery for a total allowable harvest of 4,418 kg (Table 5-1.1).
- Harvest increased 50% to 5,789 kg, 233% of the quota (Figure 5-1.10). This harvest was 131% of the total allowable harvest.

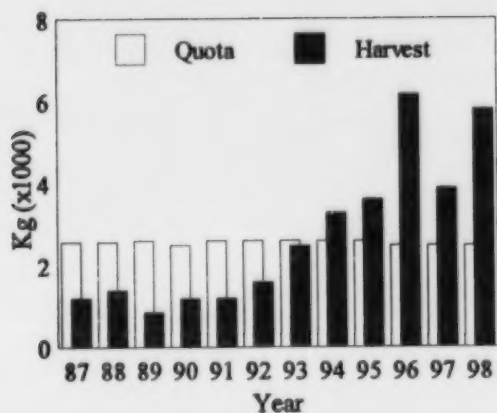


Figure 5-1.10. Lake trout/backcross quota and harvest (kg) for management area 5-1.

MANAGEMENT AREA 5-2

GENERAL

- Quota issued on commercial fishing licences was 90,724 kg, including a lake trout allowance of 1,857 kg, and a lake whitefish allowance of 12,000 kg (Table 5-2.1).
- Harvest of all fish species under quota control increased 38% to 74,715 kg (Table 5-2.1). Estimated value of these fish increased 38% to \$186,010.
- Harvest and estimated value of all species sold was 78,186 kg and \$188,606 respectively (Table 5-2.1). An additional 13,818 kg of fish of no commercial value was reported caught.

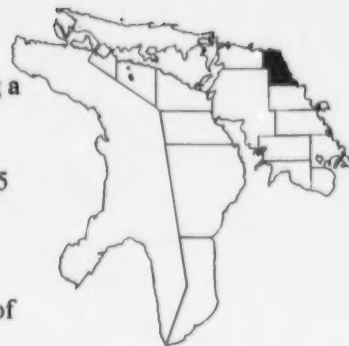


Table 5-2.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-2 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	0	0	0.0	23	0
Chub	29,163	19,293	66.2	19,293	54,139
Lake Sturgeon	46	0	0.0	34	0
Lake Trout	1,857	5,583	300.6	8,713	9,707
Lake Whitefish	53,804	46,288	86.0	46,288	101,883
Northern Pike	500	144	28.8	192	58
Walleye	4,566	3,407	74.6	3,407	20,223
Yellow Perch	788	0	0.0	0	0
Burbot		23		4,349	0
Chinook Salmon		3		588	0
Coho Salmon		0		12	0
Common Carp		53		1,049	35
Freshwater Drum		0		45	0
Lake Herring		3,281		3,314	2,492
Longnose Gar		0		16	0
Pink Salmon		1		1	0
Rainbow Trout		3		12	0
Redfin Suckers		105		119	69
Round Whitefish		2		24	0
Suckers		0		3,904	0
White Bass		0		9	0
Other/Mixed		0		612	0
Total	90,724	78,186		92,004	188,606

LAKE WHITEFISH

- The quota was 41,804 kg (Figure 5-2.1), with an additional temporary allowance of 12,000 kg for a total allowable harvest of 53,804 kg.
- The harvest increased 49% to 46,288 kg, 111% of the quota (Figure 5-2.1), and 86% of the total allowable harvest.
- Gill net effort increased 71% to 339 km (Figure 5-2.2).
- CPUE decreased 11% to 139 kg/km (Figure 5-2.3).
- 339 whitefish sampled by commercial fishermen in 1997 consisted of 22% 3 year olds, 26% 4 year olds, 13% 5 year olds, 21% 6 year olds, 15% 7 year olds, and 4% 8 year olds and older.
- Based on CPUE and the strength of the 1991 and 1993 year-classes, abundance should remain high in 1999.

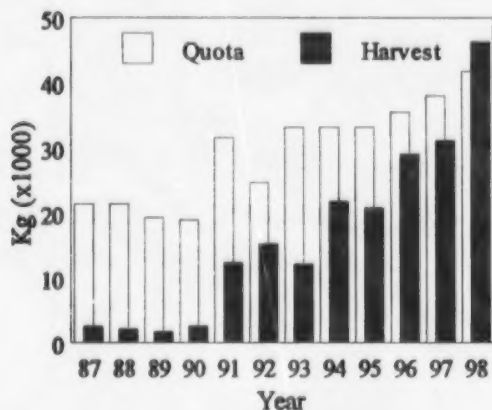


Figure 5-2.1. Lake whitefish quota and harvest (kg) for management area 5-2.

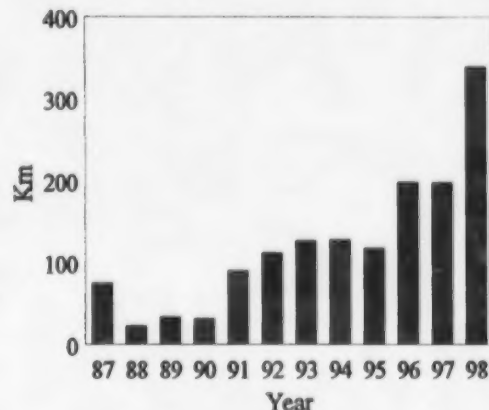


Figure 5-2.2. Lake whitefish gill net effort (km) for management area 5-2.

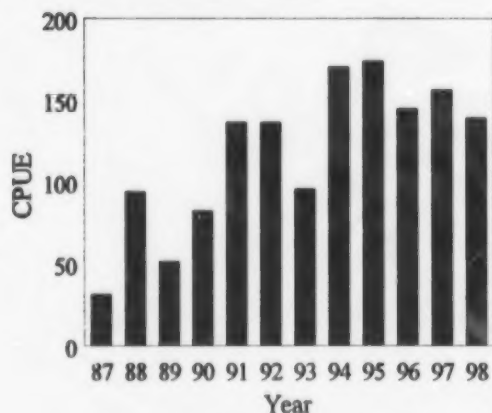


Figure 5-2.3. Lake whitefish gill net CPUE (kg/km) for management area 5-2.

CHUB

- The quota was 29,163 kg.
- The harvest increased 9% to 19,293 kg, 66% of the quota (Figure 5-2.4).
- Effort increased 3% to 185 km (Figure 5-2.5).
- CPUE (harvest) increased 8% to 105 kg/km (Figure 5-2.6).
- In 1997, a sample of 448 chub consisted of 1% 3 and 4 year olds, 7% 5 year olds, 20% 6 year olds, 31% 7 year olds, 29% 8 year olds, 9% 9 year olds, and 3% 10 year olds.
- Based upon CPUE and age composition of the commercial catch, abundance is not likely to change greatly in 1999.

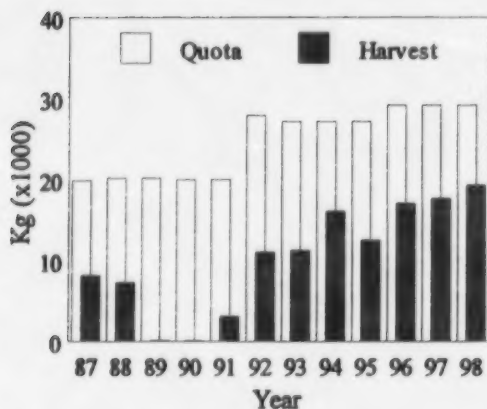


Figure 5-2.4. Chub quota and harvest (kg) for management area 5-2.

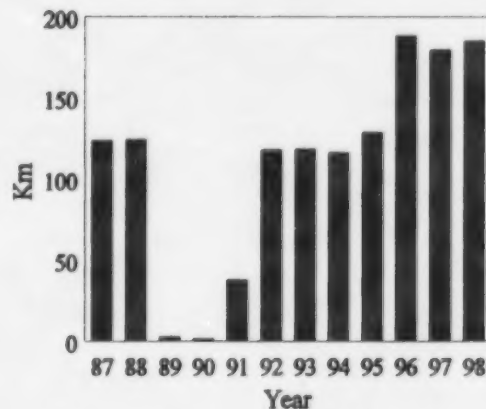


Figure 5-2.5. Chub gill net effort (km) for management area 5-2.

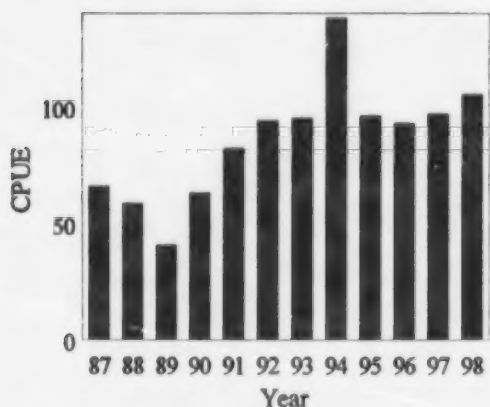


Figure 5-2.6. Chub gill net CPUE (kg/km) for management area 5-2.

YELLOW PERCH

- The quota was 788 kg.
- There was no effort or harvest reported in 1998 (Figures 5-2.8,5-2.9).
- Yellow perch abundance is greatly reduced relative to past years.
- There is no indication from harvest information that yellow perch abundance will increase in the near future.

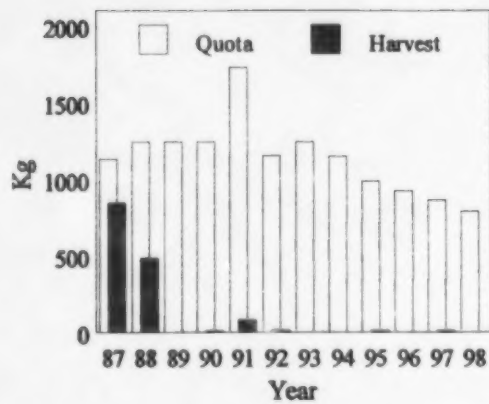


Figure 5-2.7. Yellow perch quota and harvest (kg) for management area 5-2.

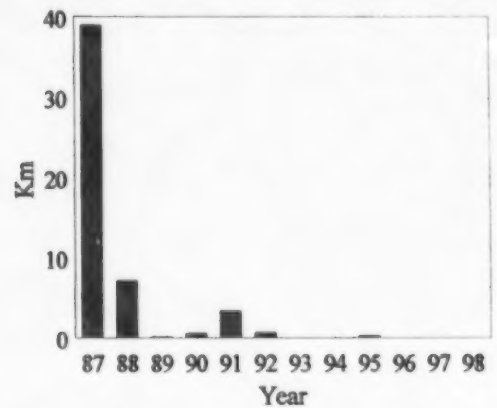


Figure 5-2.8. Yellow perch gill net effort (km) for management area 5-2.

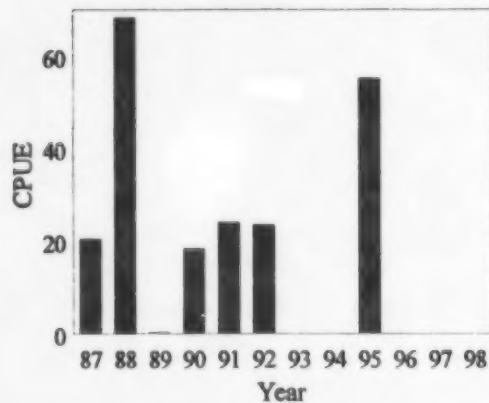


Figure 5-2.9. Yellow perch gill net CPUE (kg/km) for management area 5-2.

WALLEYE

- The quota in 1998 was 4,566 kg.
- The harvest increased to 3,407 kg, 75% of the quota (Figure 5-2.10).
- Total targeted effort increased 75% to 84 km (Figure 5-2.11).
- CPUE was unchanged at 41 kg/km (Figure 5-2.12).
- Based on CPUE, walleye abundance appears stable in this area.

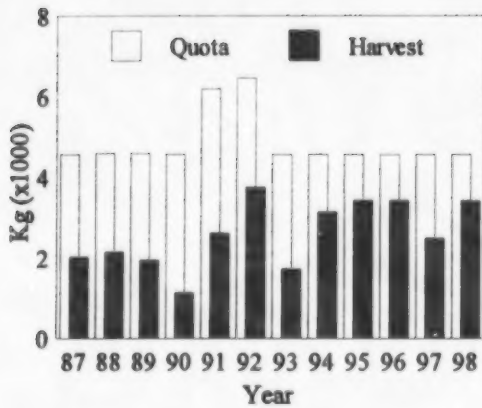


Figure 5-2.10. Walleye quota and harvest (kg) for management area 5-2.

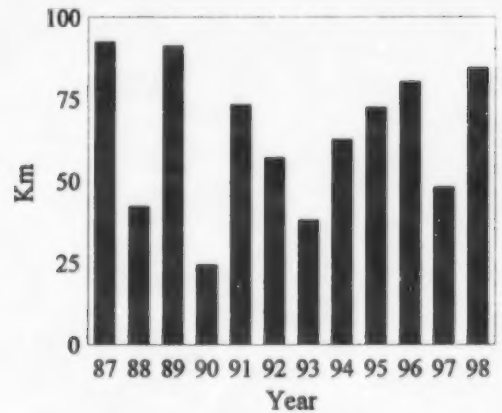


Figure 5-2.11. Walleye gill net effort (km) for management area 5-2.

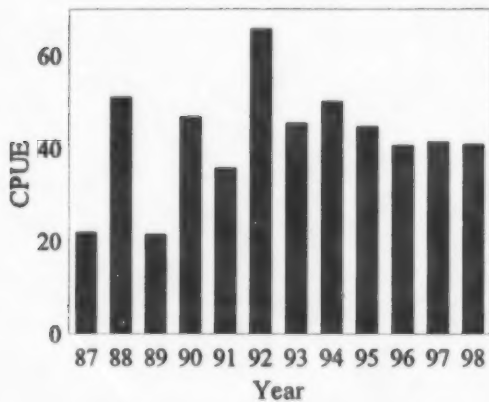


Figure 5-2.12. Walleye gill net CPUE (kg/km) for management area 5-2.

MANAGEMENT AREA 5-3

GENERAL

- Total quota was 265,908 kg, including a lake whitefish allowance of 12,000 kg. There was no temporary lake trout allowance.
- Harvest of all fish species under quota control decreased 51% to 88,350 kg (Table 5-3.1). Estimated value of these fish decreased 60% to \$198,535.
- Harvest and estimated value of all species sold was 88,395 kg and \$198,560 respectively (Table 5-3.1). An additional 908 kg of fish of no commercial value was reported caught.

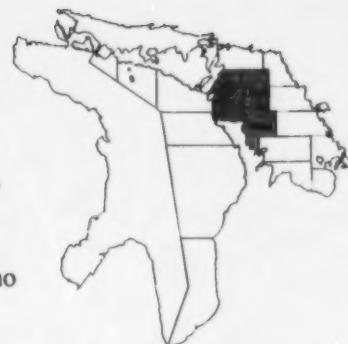


Table 5-3.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-3 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	908	0	0.0	0	0
Chub	204,286	27,266	13.3	27,266	74,740
Lake Sturgeon	0	0	0.0	0	0
Lake Trout	2,706	15,437	570.5	15,646	29,068
Lake Whitefish	55,182	45,618	82.7	45,618	94,663
Northern Pike	414	0	0.0	0	0
Walleye	0	29	--	29	64
Yellow Perch	2,412	0	0.0	0	0
Burbot		0		381	0
Chinook Salmon		0		196	0
Lake Herring		45		45	25
Other/Mixed		0		122	0
Total	265,908	88,395		89,303	198,560

LAKE WHITEFISH

- The quota issued was 43,182 kg (Figure 5-3.1), with an additional temporary allowance of 12,000 kg for a total allowable harvest of 55,182 kg..
- The harvest increased by 28% to 45,618 kg, 106% of the quota (Figure 5-3.1), and 83% of the total allowable harvest. All of the non-aboriginal harvest came from area GB03 (Figure 5-3.2).
- Non-aboriginal gill net effort increased 19% to 126 km (Figure 5-3.3) while CPUE decreased by 11% in GB03, to 102 kg/km (Figure 5-3.4).
- A sample of 150 fish from the catch in 1997 consisted of 3% 4 year olds, 17% 5 year olds, 57% 6 year olds, 14% 7 year olds, and 4% age 8, and 4% age 9 and older.
- Abundance is unlikely to change greatly in 1999 as year-class indices in southern Georgian Bay and commercial catch samples in adjacent management areas suggest that several good year-classes will contribute to the catch.

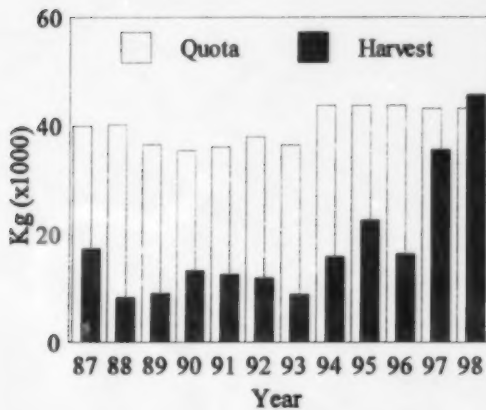


Figure 5-3.1. Lake whitefish quota and harvest (kg) for management area 5-3

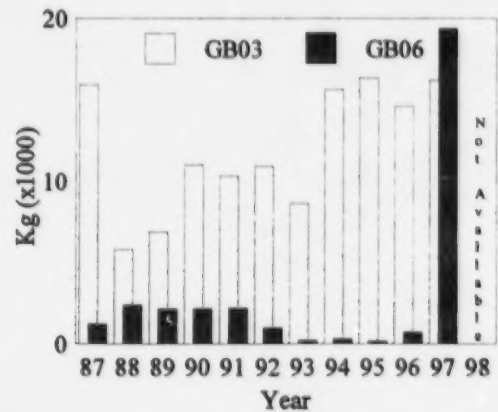


Figure 5-3.2. Lake whitefish harvest (kg) by subarea for management area 5-3.

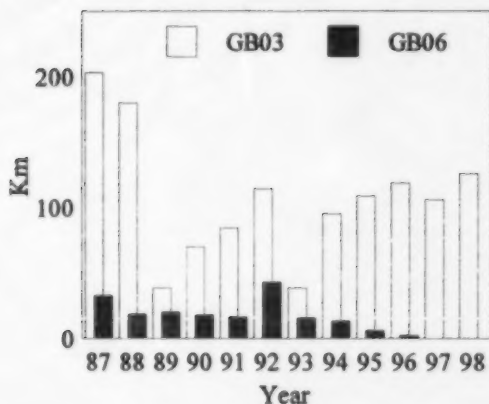


Figure 5-3.3. Lake whitefish gill net effort (km) by subarea for management area 5-3.

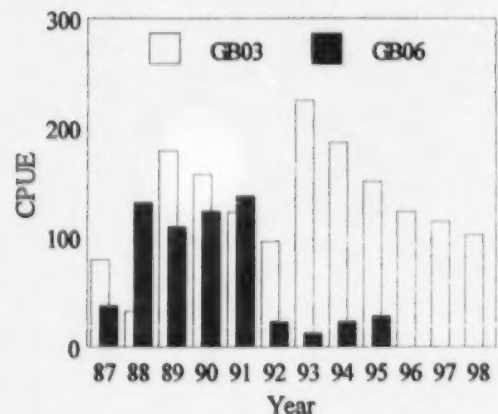


Figure 5-3.4. Lake whitefish annual gill net CPUE (kg/km) by subarea for management area 5-3.

CHUB

- The quota issued was 204,286 kg.
- Harvest decreased 80% to 27,266 kg, 13% of the quota (Figure 5-3.5).
- Overall management area reported effort decreased 90% to 219 km (Figure 5-3.7; Appendix 1, Table A1.27).
- The CPUE of harvested chub in GB03 and GB04 increased 14% and 44% respectively (Figure 5-3.8). Total management area harvested CPUE increased 66% to 101.3 kg/km (Appendix 1, Table A1.27).
- In 1997, age 6 and 7 fish contributed substantially to the catch, while 5 year olds increased (Tables 5-3.2,5-3.3).
- Abundance appeared to increase in 1998, as indicated by an increase in CPUE.
- Abundance will likely not change greatly in 1999 even though the relatively weaker 1992 through 1994 year-classes will make up most of the fishery (Figures 5-3.10,5-3.11).

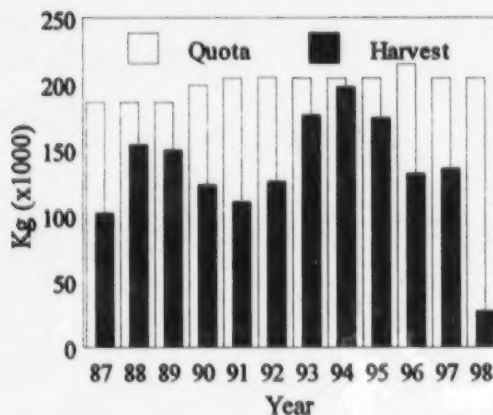


Figure 5-3.5. Chub quota and harvest (kg) for management area 5-3.

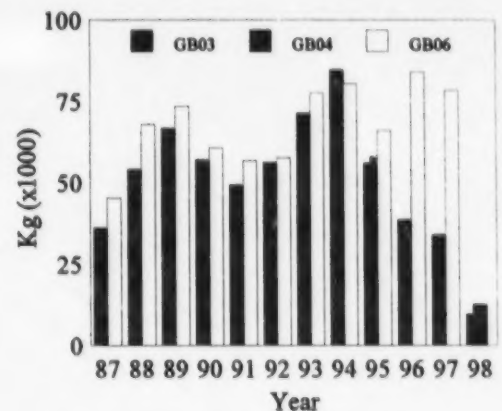


Figure 5-3.6. Chub harvest (kg) by subarea for management area 5-3.

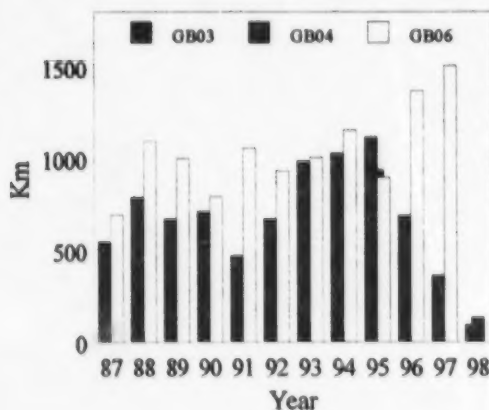


Figure 5-3.7. Chub gill net effort (km) by subarea for management area 5-3.

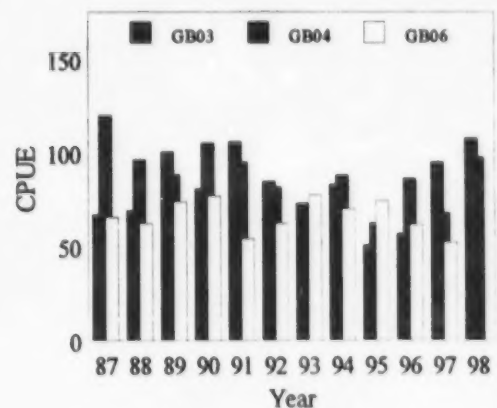


Figure 5-3.8. Chub annual gill net CPUE (kg/km) by subarea for management area 5-3.

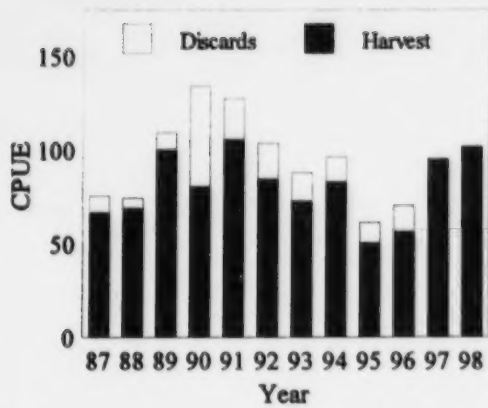


Figure 5-3.9. Chub (harvest + discards) gill net CPUE (kg/km) for GB03 (subarea of management area 5-3). CPUE corrected for discards.

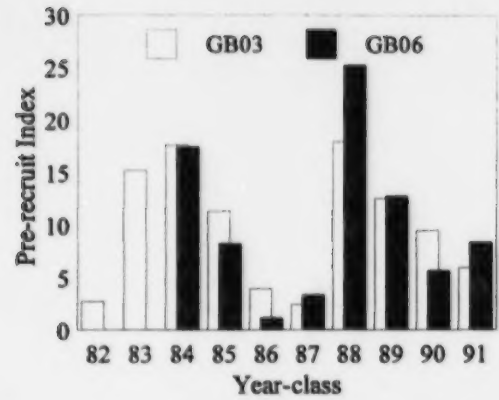


Figure 5-3.10. Indices of year-class strength for chub from index gillnetting in GB03 and GB06 (subareas of management area 5-3), using multi-filament nets.

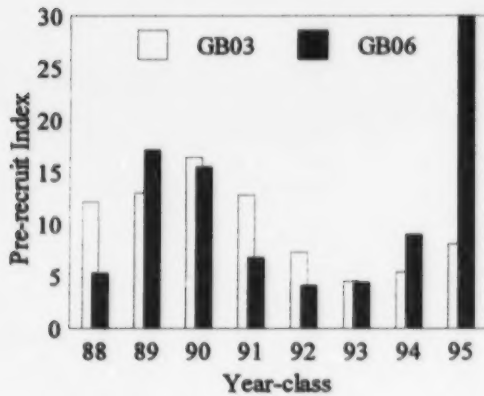


Figure 5-3.11. Indices of year-class strength for chub from index gillnetting in assessment areas GB03 and GB06 (subareas of management area 5-3), using monofilament nets.

Table 5-3.2. Estimated number of harvested and discarded chub in gill nets in assessment area GB03 (subarea of management area 5-3).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	
2	1048	0	0	0	0	0	0	0	0	0	0	
3	2549	890	0	1329	41	0	418	862	282	0	0	
4	22282	23626	2751	5204	3536	284	2934	5675	11529	3976	1288	N
5	40537	126273	74651	49416	9580	14895	7703	35304	24531	19791	32650	O
6	98439	70060	196624	199377	45004	53806	25842	84845	80394	63281	54249	
7	37317	61781	44621	189677	119558	110030	39310	130721	113462	81541	67146	D
8	5411	16473	14005	24887	56802	87544	58947	107967	74731	54564	24461	A
9	1291	2951	2657	8502	12960	30395	35129	87529	39315	17627	4008	T
10	0	219	0	452	2405	351	10732	20184	3659	4113	830	A
11	0	99	628	0	1307	0	2056	4416	1960	0	0	
12	514	0	0	452	0	0	0	0	0	984	0	
13	0	0	0	0	0	0	418	0	0	0	0	
>13	0	0	0	0	0	0	0	0	0	0	0	
Mean Age	5.8	5.7	6.0	6.7	6.9	7.4	7.6	7.3	7.4	7.0	6.5	

Note: corrected for discards.

Table 5-3.3. CPUE-at-age (number/km) for harvested and discarded chub in gill nets in assessment area GB03 (subarea of management area 5-3).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	4.7	1.1	0.0	1.9	0.9	0.0	1.2	0.8	0.3	0.0	0.0	
4	41.1	30.2	4.1	7.4	7.6	0.4	8.2	5.6	10.4	5.8	3.6	N
5	74.8	161.1	112.1	69.9	20.5	22.4	21.6	34.5	22.0	29.0	90.8	O
6	181.6	89.4	295.3	281.8	96.5	80.8	72.5	82.9	72.2	92.6	150.9	
7	68.9	78.8	67.0	268.1	256.3	165.1	110.2	127.7	101.9	119.3	186.8	D
8	10.0	21.0	21.0	35.2	121.8	131.4	165.3	105.5	67.1	79.8	68.1	A
9	2.4	3.8	4.0	12.0	27.8	45.6	98.5	85.5	35.3	25.8	11.2	T
10	0.0	0.3	0.0	0.6	5.2	0.5	30.1	19.7	3.3	6.0	2.3	A
11	0.0	0.1	1.0	0.0	2.8	0.0	5.8	4.3	1.8	0.0	0.0	
12	1.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.4	0.0	
13	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Note: corrected for discards.

YELLOW PERCH

- Quota issued was 2,412 kg.
- No harvest of yellow perch was reported in 1998 (Figure 5-3.12).
- Yellow Perch abundance is greatly reduced relative to previous years and, based upon harvest information, is unlikely to increase in the near future.

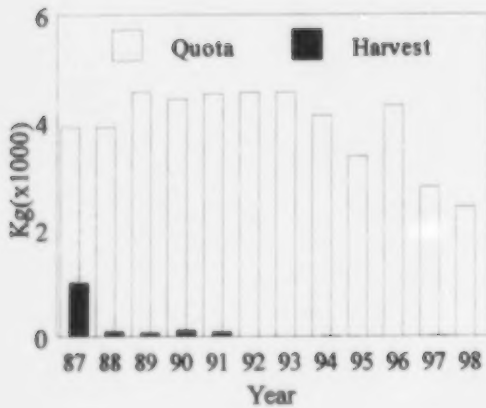


Figure 5-3.12. Yellow perch quota and harvest (kg) for management area 5-3.

LAKE TROUT/BACKCROSS

- The quota was 2,706 kg. There was no additional temporary allowance (Table 5-3.1).
- The harvest increased to 15,437 kg, 571% of the quota (Figure 5-3.13). Harvest by assessment area is given in Figure 5-3.14.
- CPUE information for 1998 is presented in Figure 5-3.15, where GB03 data is from lake whitefish nets and GB04 data is from chub nets, which reported harvested lake trout.
- No prediction concerning future abundance is possible with available information.

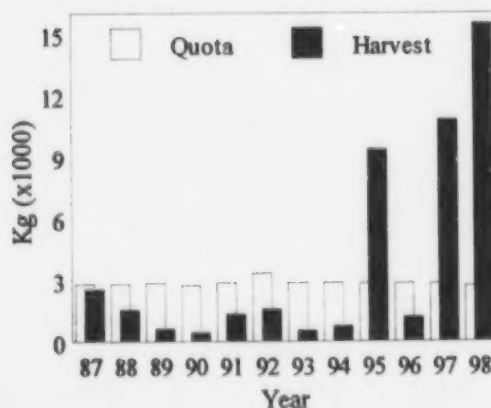


Figure 5-3.13. Lake trout/backcross quota and harvest (kg) for management area 5-3.

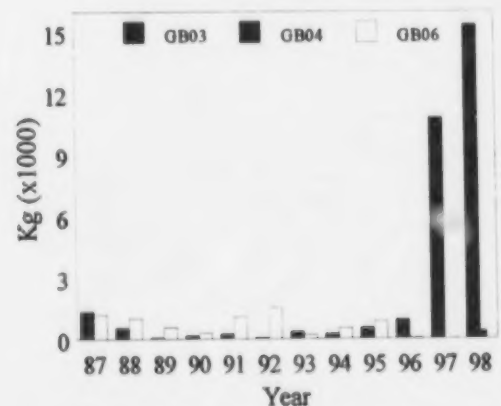


Figure 5-3.14. Lake trout/backcross harvest (kg) by subarea for management area 5-3.

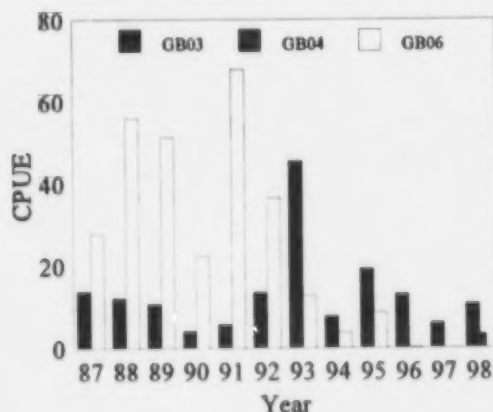


Figure 5-3.15. Lake trout/backcross gill net CPUE (kg/km) for management area 5-3.

MANAGEMENT AREA 5-4

GENERAL

- Quota issued on commercial fishing licences was 40,454 kg, including a lake trout allowance of 113 kg, and a lake whitefish allowance of 6,000 kg.
- Harvest of all fish species under quota control decreased 7% to 19,857 kg (Table 5-4.1). Estimated value of these fish decreased 17% to \$49,559.
- Harvest and estimated value of all species sold was 21,201 kg and \$50,477, respectively (Table 5-4.1). An additional 1,759 kg of fish of no commercial value was reported caught.

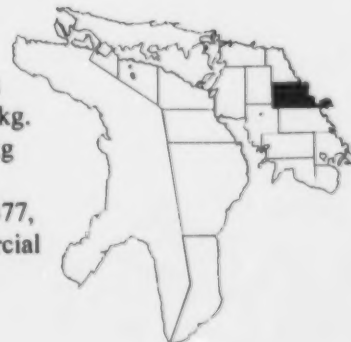


Table 5-4.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-4 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	0	0	0.0	0	0
Chub	18,000	1,504	8.4	1,504	4,570
Lake Sturgeon	0	0	0.0	0	0
Lake Trout	113	895	792.0	1,980	1,302
Lake Whitefish	19,328	17,337	89.7	17,337	43,392
Northern Pike	0	8	--	8	14
Walleye	159	113	71.1	113	281
Yellow Perch	2,854	0	0.0	0	0
Burbot		0		57	0
Chinook Salmon		0		91	0
Common Carp		0		18	0
Lake Herring		1,344		1,566	918
Suckers		0		286	0
Total	40,454	21,201		22,960	50,477

LAKE WHITEFISH

- The quota issued was 13,328 kg (Figure 5-4.1), with an additional temporary allowance of 6,000 kg for a total allowable harvest of 19,328 kg.
- The harvest increased 59% to 17,337 kg, 130% of the quota (Figure 5-4.1), and 90% of the total allowable harvest.
- Gill net effort increased 90% to 99 km (Figure 5-4.2).
- CPUE decreased 14% to 182 kg/km (Figure 5-4.3).
- A sample of 131 fish from the commercial catch consisted of 8% 4 year olds, 16% 5 year olds, 25% 6 year olds, 14% 7 year olds, 22% 8 year olds, and 15% 9 year olds and older.
- Abundance appeared to decrease slightly in 1998 based upon CPUE.
- Several good year-classes should continue in the harvest (Figure 5-8.5), thus maintaining the level of abundance in 1999.

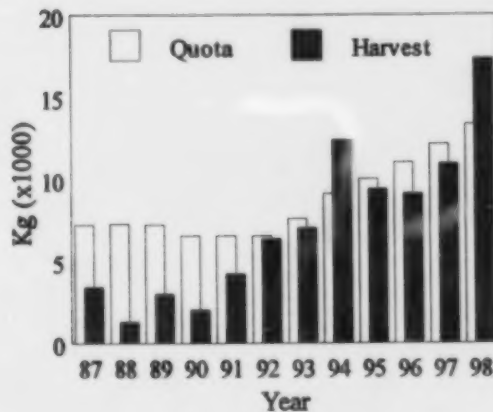


Figure 5-4.1. Lake whitefish quota and harvest (kg) for management area 5-4.

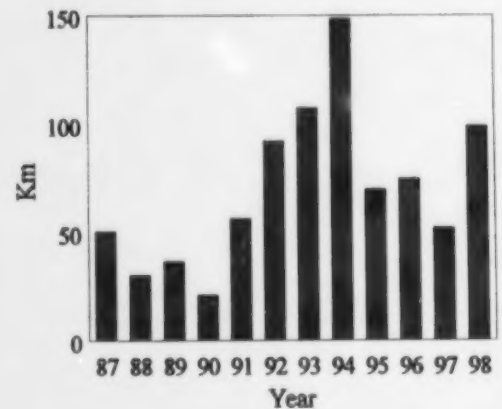


Figure 5-4.2. Lake whitefish effort (km) for management area 5-4.

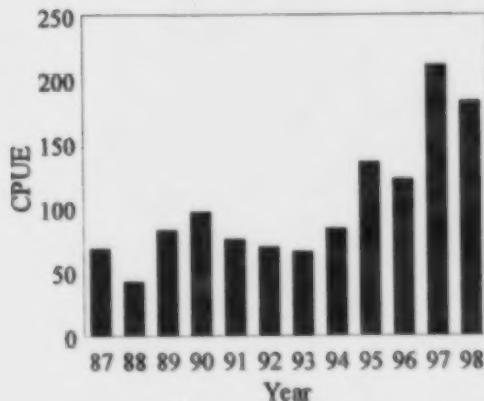


Figure 5-4.3. Lake whitefish gill net CPUE (kg/km) for management area 5-4.

CHUB

- Quota was 18,000 kg.
- Harvest decreased to 1,504 kg, 8% of the quota (Figure 5-4.4).
- Effort decreased to 39 km (Figure 5-4.5).
- CPUE decreased 60% to 36 kg/km (Figure 5-4.6).
- Indices of year-class strength from area 5-3 indicate several weaker than average year-classes supporting the fishery (Figures 5-3.10,5-3.11).
- Abundance is expected to decline in 1999.

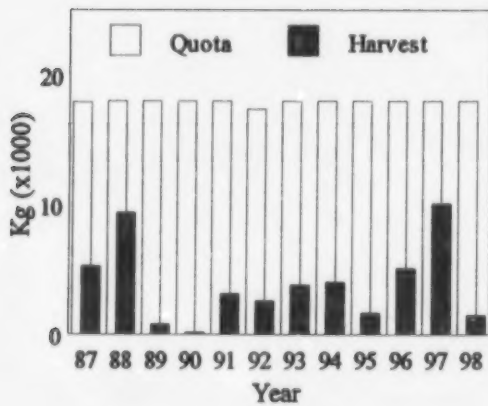


Figure 5-4.4. Chub quota and harvest (kg) for management area 5-4.

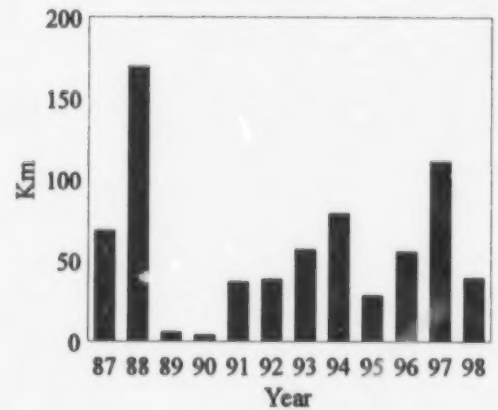


Figure 5-4.5. Chub gill net effort (km) for management area 5-4.

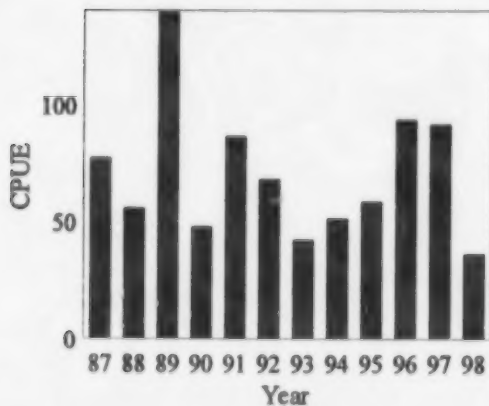


Figure 5-4.6. Chub gill net CPUE (kg/km) for management area 5-4.

YELLOW PERCH

- Quota was 2,854 kg.
- No harvest or effort was reported in 1998 (Figures 5-4.7, 5-4.8).
- Yellow perch abundance in this area is greatly reduced relative to past years, and based on harvest information is unlikely to increase in the near future.

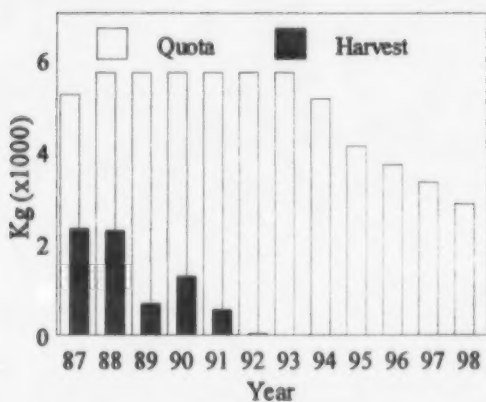


Figure 5-4.7. Yellow perch quota and harvest (kg) for management area 5-4.

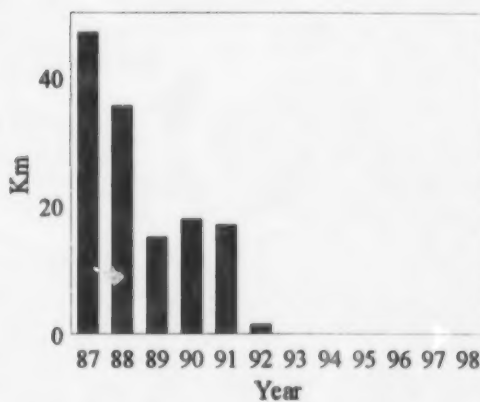


Figure 5-4.8. Yellow perch gill net effort (km) for management area 5-4.

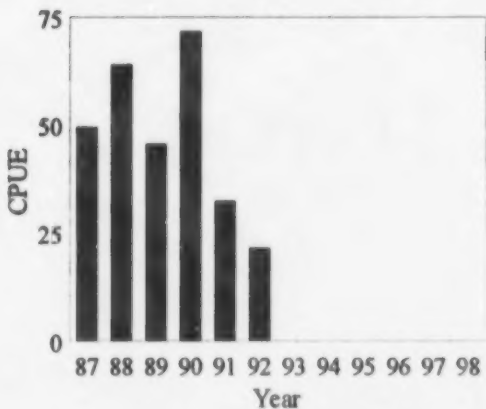


Figure 5-4.9. Yellow perch gill net CPUE (kg/km) for management area 5-4 (no reported effort for 93-98).

MANAGEMENT AREA 5-5

GENERAL

- Quota issued on commercial fishing licences was 67,281 kg, including a lake trout allowance of 1,504 kg, and a lake whitefish allowance of 2,000 kg.
- Harvest of all fish species under quota control decreased 17% to 43,746 kg (Table 5-5.1). Estimated value of these fish decreased 18% to \$121,173.
- Harvest and estimated value of all species sold was 43,757 kg and \$121,180, respectively (Table 5-5.1). An additional 2,497 kg of fish of no commercial value was reported caught.

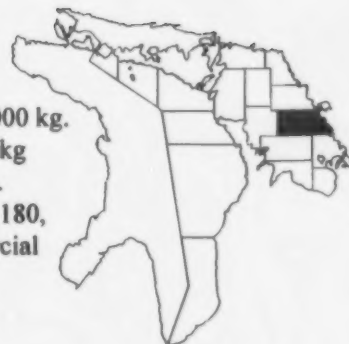


Table 5-5.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-5 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	0	0	0.0	0	0
Chub	30,736	18,427	60.0	18,427	55,109
Lake Sturgeon	0	0	0.0	0	0
Lake Trout	1,504	1,233	82.0	1,920	1,773
Lake Whitefish	28,477	24,086	84.6	24,086	64,291
Northern Pike	0	0	0.0	0	0
Walleye	0	0	0.0	18	0
Yellow Perch	6,564	0	0.0	0	0
Burbot		0		1,271	0
Chinook Salmon		0		147	0
Lake Herring		11		16	7
Suckers		0		369	0
Total	67,281	43,757		46,254	121,180

LAKE WHITEFISH

- The quota was 26,477 kg (Figure 5-5.1), with an additional temporary allowance of 2,000 kg for a total allowable harvest of 28,477 kg.
- The harvest increased 19% to 24,086 kg, 91% of the quota (Figure 5-5.1), and 85% of the total allowable harvest.
- Gill net effort increased 77% to 166 km (Figure 5-5.2).
- CPUE decreased 31% to 148 kg/km (Figure 5-5.3).
- Abundance appeared to decrease in 1998 based upon decrease in CPUE.
- A sample of 190 fish taken by commercial fishers consisted of 8% 4 year olds, 20% 5 year olds, 20% 6 year olds, 26% 7 year olds, 22% 8 year olds, and 4% 9 year olds and older.
- Based on recent years' CPUE and southern Georgian Bay index values (Figures 5-8.4,5-8.5), abundance is unlikely to change greatly in 1999.

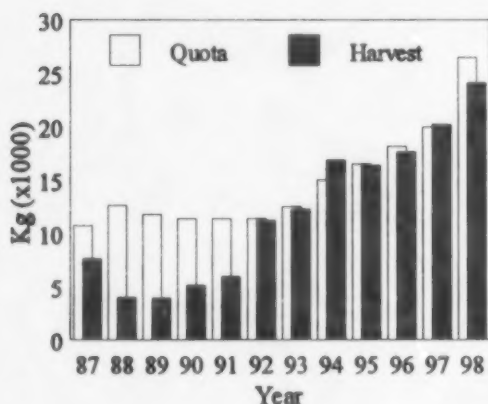


Figure 5-5.1. Lake whitefish quota and harvest (kg) for management area 5-5.

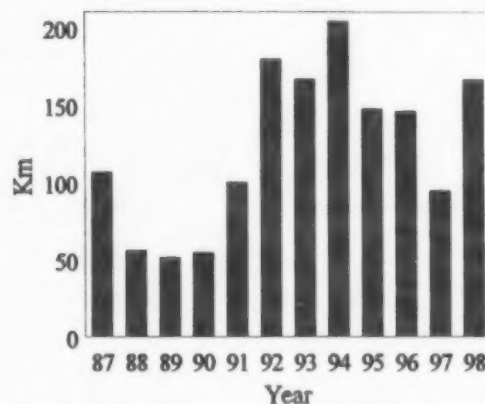


Figure 5-5.2. Lake whitefish gill net effort (km) for management area 5-5.

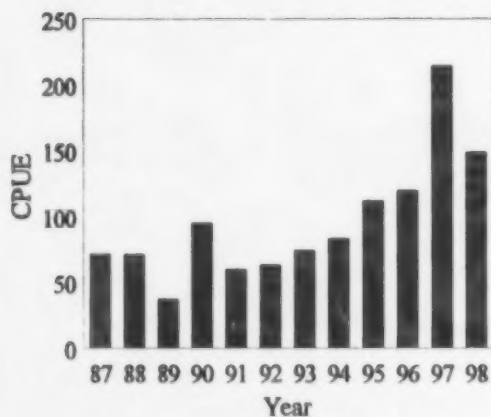


Figure 5-5.3. Lake whitefish gill net CPUE (kg/km) for management area 5-5.

CHUB

- Quota issued was 30,736 kg.
- Harvest decreased 42% to 18,427 kg, 60% of the quota (Figure 5-5.4).
- Effort decreased to 348 km (Figure 5-5.5).
- CPUE decreased 38% to 42 kg/km (Figure 5-5.6).
- Based on CPUE, abundance appears to have decreased in 1998.
- A sample of 100 chub from the harvest consisted of 14% 5 year olds, 24% 6 year olds, 40% 7 year olds, 13% 8 year olds, 6% 9 year olds, 2% 10 year olds, and 1% 11 year olds.
- Year-class indices for chub elsewhere in Georgian Bay suggest that the decrease in abundance in 1998 was due to several weaker than average cohorts making up the harvest. The fishery will likely be dependent on these year-classes in 1999 resulting in little change in abundance.

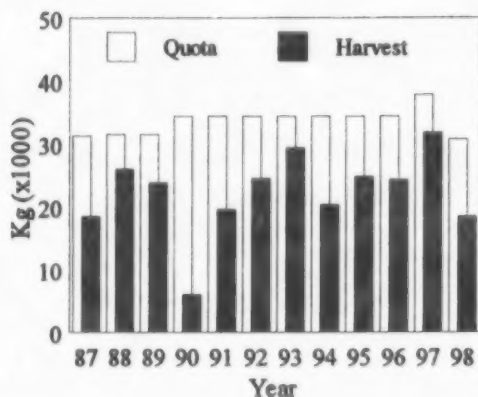


Figure 5-5.4 Chub quota and harvest (kg) for management area 5-5.

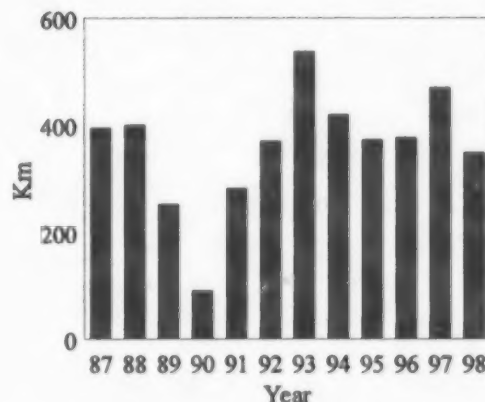


Figure 5-5.5. Chub gill net effort (km) for management area 5-5.

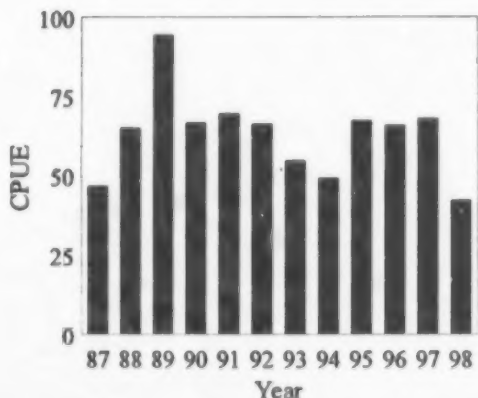


Figure 5-5.6. Chub gill net CPUE (kg/km) for management area 5-5.

YELLOW PERCH

- Quota issued was 6,564 kg.
- No harvest or effort for yellow perch was reported in 1998 (Figures 5-5.7,5-5.8).
- Yellow perch abundance is greatly reduced relative to past years.
- Based on harvest information, abundance is unlikely to increase in the near future.

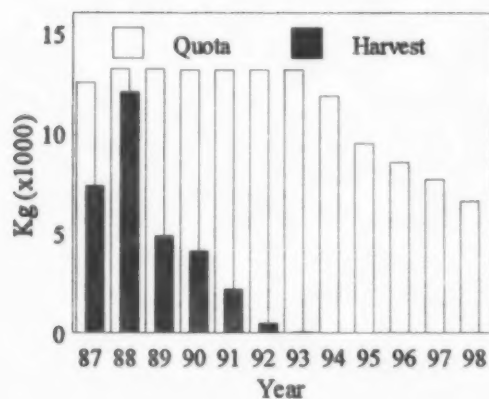


Figure 5-5.7. Yellow perch quota and harvest (kg) for management area 5-5.

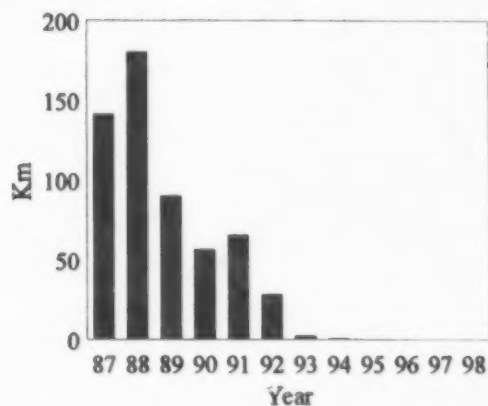


Figure 5-5.8. Yellow perch gill net effort (km) for management area 5-5.

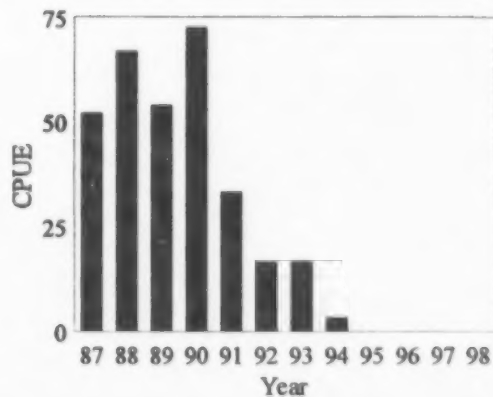


Figure 5-5.9. Yellow perch gill net CPUE (kg/km) for management area 5-5 (no reported effort for 95-98).

MANAGEMENT AREA 5-6

GENERAL

- Total quota was 96,605 kg, including a lake whitefish allowance of 8,000 kg (Table 5-6.1). There was no lake trout allowance.
- Harvest of all fish species under quota control increased 14% to 116,749 kg (Table 5-6.1). Estimated value of these fish was \$293,537.
- Harvest of all species was 116,749 kg. An additional 3,296 kg of fish of no commercial value was reported caught.



Table 5-6.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-6 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	0	0	0.0	0	0
Chub	60,820	56,517	92.9	58,026	166,194
Lake Sturgeon	0	0	0.0	1	0
Lake Trout	4,558	16,979	372.5	16,993	15,899
Lake Whitefish	29,556	43,190	146.1	43,190	111,119
Northern Pike	0	0	0.0	0	0
Walleye	400	63	15.8	63	325
Yellow Perch	1,271	0	0.0	0	0
Burbot		0		1,570	0
Chinook Salmon		0		20	0
Suckers		0		182	0
Total	96,605	116,749		120,045	293,537

LAKE WHITEFISH

- The final quota available to all commercial fisheries was 21,556 kg (Table 5-6.1), with an additional temporary allowance of 8,000 kg for a total allowable harvest of 29,556 kg..
- Total harvest increased by 48% to 43,190 kg, 200% of the final quota (Figure 5-6.1), and 146% of the total allowable harvest.
- Pre-recruit indices in southern Georgian Bay indicate that several relatively strong year-classes will continue to be vulnerable to the fishery in 1999 (Figures 5-8.4,5-8.5).
- Catch sample and effort information were unavailable at time of printing.
- No prediction can be made at time of printing with available information.

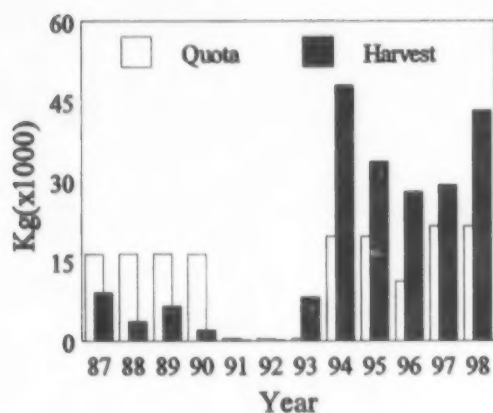


Figure 5-6.1. Lake whitefish quota and harvest (kg) for management area 5-6.

CHUB

- The total quota available to all commercial fisheries was 60,820 kg (Table 5-6.1).
- Total harvest decreased 7% to 56,517 kg, 93% of the final quota (Figure 5-6.2).
- Non-aboriginal effort decreased 36% to 361 km (Figure 5-6.3).
- Reported CPUE (harvest+discards) increased 25% to 100 kg/km (Figure 5-6.4). The discard component was unchanged at 5 kg/km.
- Age 5 to 8 fish continue to dominate the catch (Tables 5-6.2,5-6.3).
- Abundance increased in 1998, as predicted.
- Overall abundance may increase in 1999 as the strong 1994 year-class (Figures 5-8.10,5-8.11) makes up more of the harvest.

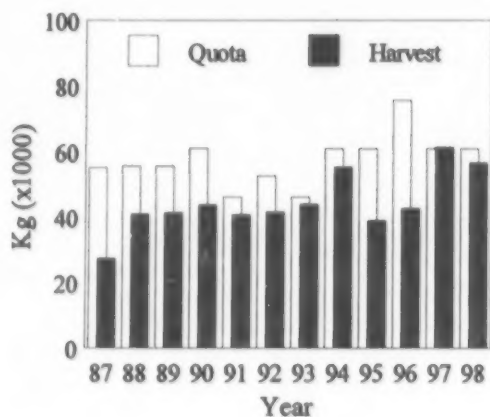


Figure 5-6.2. Chub quota and harvest (kg) for management area 5-6.

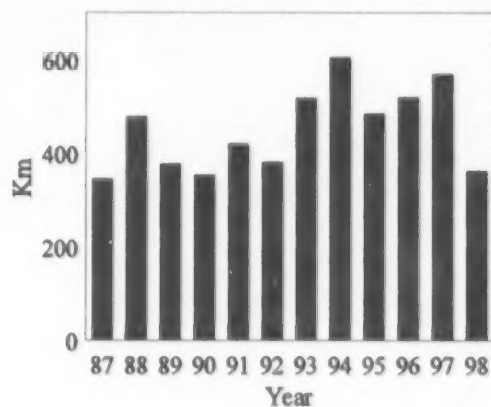


Figure 5-6.3. Chub gill net effort (km) for management area 5-6. (Non-aboriginal effort only)

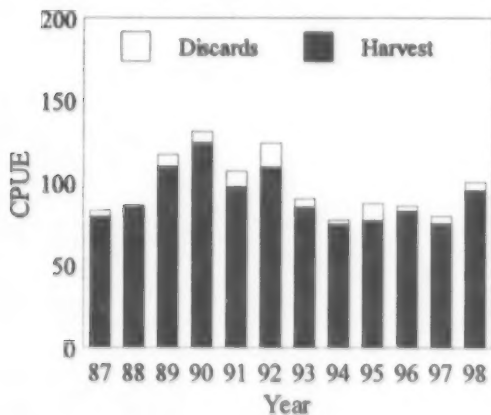


Figure 5-6.4. Chub (harvest+discards) gill net CPUE (kg/km) for management area 5-6. CPUE corrected for discards. (Non-aboriginal data only)

Table 5-6.2. Estimated number of harvested and discarded chub in gill nets in management area 5-6.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0		0	0	0	0	0	0	0	0	0	0
2	0		0	0	0	0	0	0	0	0	0	0
3	2210		443	0	562	0	0	0	1311	199	1966	0
4	29808	N	2443	10305	0	753	895	9466	5041	2958	6802	6168
5	36532	O	41014	39465	17737	2878	4724	34017	28885	23940	43205	25711
6	47555		149560	172400	78659	43873	18774	69794	42238	53877	68385	50500
7	16390	D	16469	101598	82799	88284	40300	91776	56723	69626	62881	59549
8	4900	A	7460	11570	26169	74108	45929	50313	36196	47633	37380	16079
9	296	T	2819	2665	540	16492	29386	7402	11605	13426	4534	5377
10	0	A	0	0	0	0	4533	1863	2361	4872	171	2841
11	0		0	0	0	0	1086	1479	1147	676	171	0
12	0		0	0	0	0	0	0	0	0	0	0
13	0		0	0	0	0	0	0	0	0	0	0
>13	0		0	0	0	0	0	0	0	0	0	0
Mean												
Age	5.1		6.0	6.6	6.6	7.1	7.5	6.7	6.8	6.8	6.3	6.3

Note: corrected for discards.

Table 5-6.3. CPUE-at-age (number/km) for harvested and discarded chub in gill nets in management area 5-6.

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	6.4		1.2	0.0	1.3	0.0	0.0	0.0	2.7	0.4	3.4	0.0
4	86.5	N	6.5	29.3	0.0	2.0	2.2	15.7	10.4	5.7	11.8	17.9
5	106.0	O	109.0	112.1	42.3	7.5	11.8	56.4	59.7	45.5	74.7	74.5
6	137.9		397.6	489.6	187.7	114.6	46.7	115.7	87.3	100.1	118.3	146.4
7	47.5	D	43.8	288.6	197.6	230.5	100.3	152.1	117.2	127.0	108.8	172.6
8	14.2	A	19.8	32.9	62.5	193.5	114.3	83.4	74.8	86.0	64.7	46.6
9	0.9	T	7.5	7.6	1.3	43.1	73.1	12.3	24.0	24.0	7.8	15.6
10	0.0	A	0.0	0.0	0.0	0.0	11.3	3.1	4.9	8.6	0.3	8.2
11	0.0		0.0	0.0	0.0	0.0	2.7	2.5	2.4	1.2	0.3	0.0
12	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>13	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: corrected for discards.

LAKE TROUT/BACKCROSS

- Total quota available for all commercial fisheries was 4,558 kg (Table 5-6.1).
- Total harvest was 16,979 kg, 373% of the final quota (Figure 5-6.5).
- No prediction concerning abundance is possible with available information.

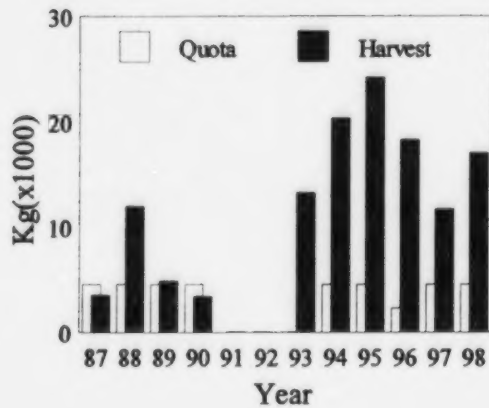


Figure 5-6.5. Lake trout/backcross quota and harvest (kg) for management area 5-6.

MANAGEMENT AREA 5-7

GENERAL

- Quota available to all commercial fisheries was 79,211 kg (Table 5-7.1), including a lake trout allowance of 500 kg, and a lake whitefish allowance of 16,000 kg.
- Total harvest of all fish species under quota control increased 53% to 80,114 kg (Table 5-7.1). Estimated value of these fish increased 58% to \$154,491.
- Harvest and estimated value of all species sold was 81,678 kg and \$155,094, respectively. An additional 5,229 kg of fish of no commercial value was reported caught.

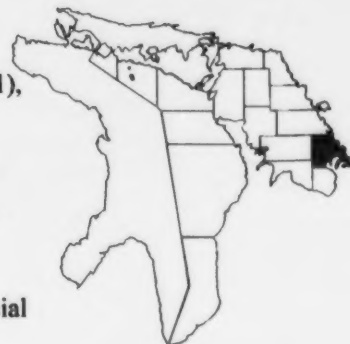


Table 5-7.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-7 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	0	19	—	19	0
Chub	12,202	10,457	85.7	10,607	31,227
Lake Sturgeon	589	261	44.3	479	1,150
Lake Trout	1,976	9,152	463.2	9,884	6,637
Lake Whitefish	55,742	58,933	105.7	58,955	112,288
Northern Pike	1,175	88	7.5	88	142
Walleye	2,090	1,201	57.5	1,201	3,036
Yellow Perch	5,437	3	0.1	3	11
Burbot		0		2,581	0
Chinook Salmon		211		236	0
Common Carp		0		365	0
Lake Herring		496		497	506
Longnose Gar		0		83	0
Muskellunge		7		39	0
Pink Salmon		64		64	97
Rainbow Smelt		0		3	0
Rainbow Trout		4		9	0
Round Whitefish		1		25	0
Smallmouth Bass		0		10	0
Suckers		781		1,759	0
Total	79,211	81,678		86,907	155,094

LAKE WHITEFISH

- The quota available to all commercial fisheries was 39,742 kg (Table 5-7.1), with an additional temporary allowance of 16,000 kg for a total allowable harvest of 55,742 kg..
- Total harvest increased by 111% to 58,933 kg, 148% of the quota (Figure 5-7.1), and 106% of the total allowable catch.
- Reported gill net effort increased 25% to 147 km (Figure 5-7.2).
- CPUE increased by 31% to 92 kg/km (Figure 5-7.3).
- Age composition from a catch sample of 218 fish from the commercial catch was 2% 4 year olds, 18% 5 year olds, 25% 6 year olds, 28% 7 year olds, 16% 8 year olds, 6% 9 year olds, and 5% 10 year olds and older, with a mean age of 6.8 years.
- Based upon commercial catch age composition and southern Georgian Bay year-class indices (Figure 5-8.5), several good year-classes are likely to support a similar level of abundance in 1999.

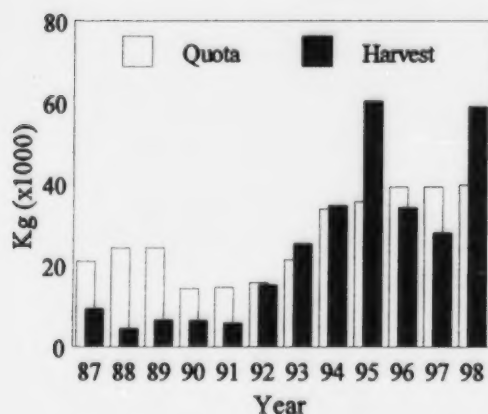


Figure 5-7.1. Lake whitefish quota and harvest (kg) for management area 5-7.

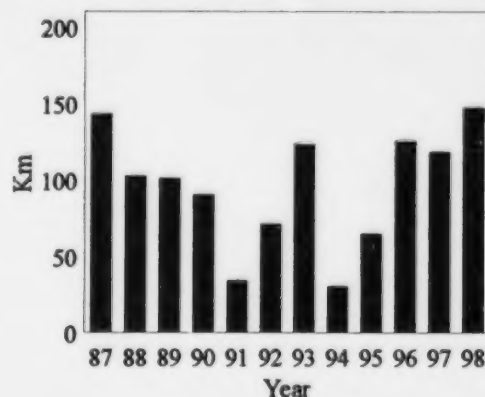


Figure 5-7.2. Lake whitefish gill net effort (km) for management area 5-7.

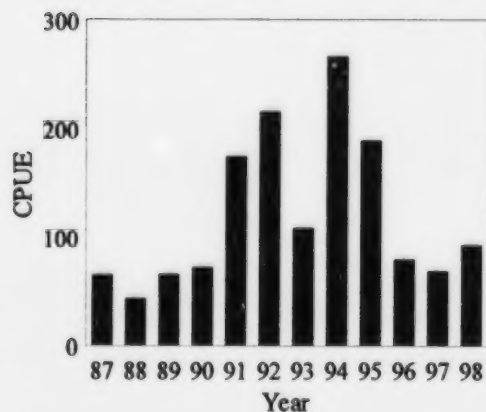


Figure 5-7.3. Lake whitefish gill net CPUE (kg/km) for management area 5-7.

CHUB

- Quota available to all commercial fisheries was 12,202 kg.
- Harvest increased 3% to 10,457 kg, 86% of the quota (Figure 5-7.4).
- Reported effort decreased 28% to 135 km (Figure 5-7.5).
- CPUE increased 45% to 80 kg/km (Figure 5-7.6).
- Catch sampling indicated that age 6, 7, and 8 year old fish made up the majority of the harvest.
- Abundance appeared to increase in 1998, after declining in the two previous years.
- Abundance should not change greatly in 1999 as several year-classes continue to make up the catch.

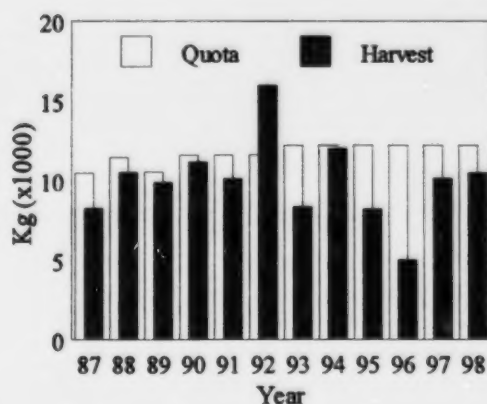


Figure 5-7.4. Chub quota and harvest (kg) for management area 5-7.

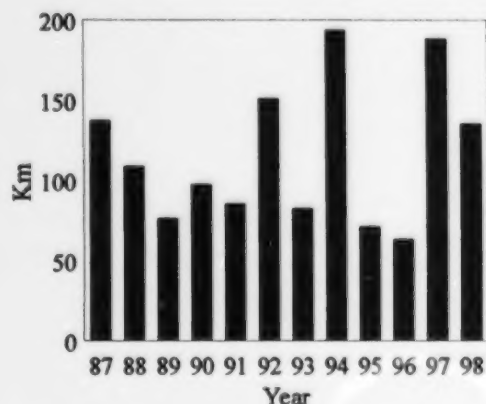


Figure 5-7.5. Chub gill net effort (km) for management area 5-7.

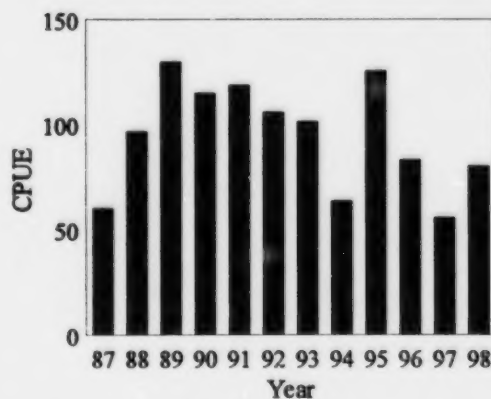


Figure 5-7.6. Chub gill net CPUE (kg/km) for management area 5-7.

YELLOW PERCH

- The quota available to all commercial fisheries was 5,437 kg (Table 5-7.1).
- A harvest of only 3 kg was reported in 1998 (Figure 5-7.7).
- Reported effort increased 17% to 0.7 km (Figure 5-7.8).
- CPUE was unchanged at 4 kg/km (Figure 5-7.9).
- Yellow perch abundance appears to have declined greatly relative to past years.
- Based on very low harvests in a number of recent years, abundance is unlikely to increase in the near future.

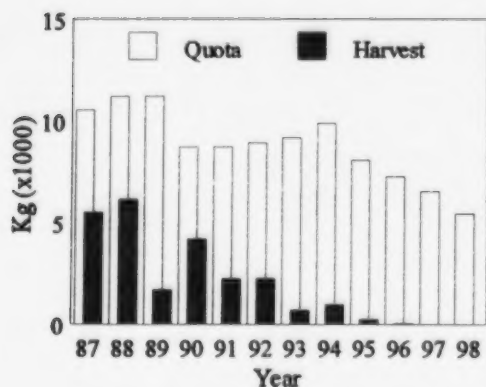


Figure 5-7.7. Yellow perch quota and harvest (kg) for management area 5-7.

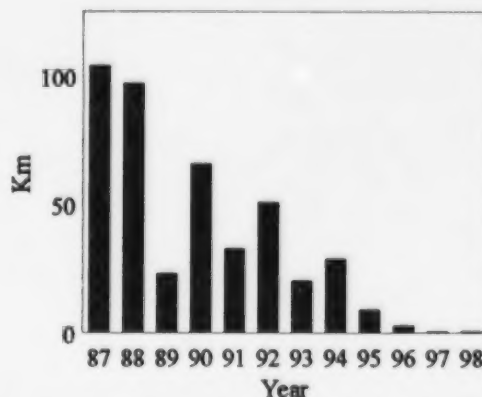


Figure 5-7.8. Yellow perch gill net effort (km) for management area 5-7.

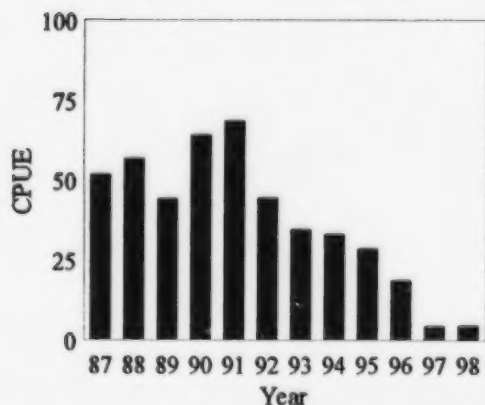


Figure 5-7.9. Yellow perch gill net CPUE (kg/km) for management area 5-7.

MANAGEMENT AREA 5-8

GENERAL

- Quota issued on commercial fishing licences was 53,908 kg, including a lake trout allowance of 1,625 kg, and a lake whitefish allowance of 2,000 kg.
- Harvest of all fish species under quota control increased 24% to 94,877 kg (Table 5-8.1). Estimated value of these fish was \$231,116.
- Harvest of all species sold was 94,877 kg (Table 5-8.1). An additional 3,543 kg of fish of no commercial value was reported caught.

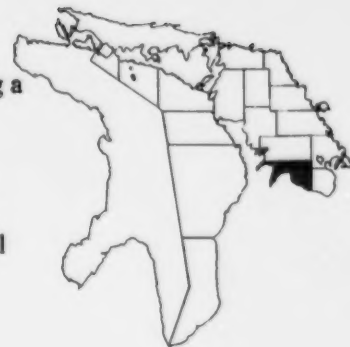


Table 5-8.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-8 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	0	0	0.0	0	0
Chub	19,985	25,370	126.9	26,364	74,273
Lake Sturgeon	0	0	0.0	4	0
Lake Trout	6,161	23,420	380.1	23,551	31,152
Lake Whitefish	26,628	46,087	173.1	46,264	125,691
Northern Pike	0	0	0.0	0	0
Walleye	0	0	0.0	0	0
Yellow Perch	1,134	0	0.0	0	0
Brown Trout		0		9	0
Burbot		0		1,297	0
Chinook Salmon		0		91	0
Rainbow Trout		0		5	0
Suckers		0		835	0
Total	53,908	94,877		98,420	231,116

LAKE WHITEFISH

- The quota available to the commercial fishery was 24,628 kg (Figure 5-8.1), with an additional temporary allowance of 2,000 kg for a total allowable harvest of 26,628 kg..
- The total harvest increased by 31% to 46,087 kg, 187% of the quota (Figure 5-8.1), and 173% of the total allowable harvest.
- Non-Aboriginal gill net effort increased 3% to 75 km (Figure 5-8.2).
- Non-Aboriginal CPUE increased by 39% to 425 kg/km (Figure 5-8.3).
- Abundance appeared to increase in 1998, due to the continued appearance of a strong 1993 year-class in the fishery (Table 5-8.3).
- Abundance is expected to remain high in 1999 (Figure 5-8.6) mainly due to the continued presence of relatively strong year-classes in the fishery (Figures 5-8.4,5-8.5).

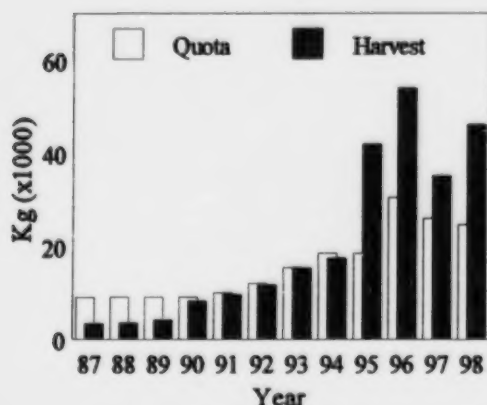


Figure 5-8.1. Lake whitefish quota and harvest (kg) for management area 5-8.

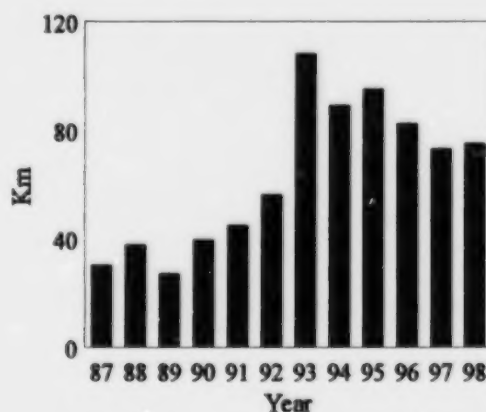


Figure 5-8.2. Lake whitefish gill net effort (km) for management area 5-8.

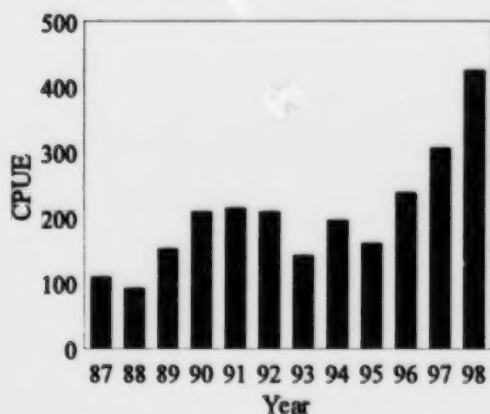


Figure 5-8.3. Lake whitefish gill net CPUE (kg/km) for management area 5-8.

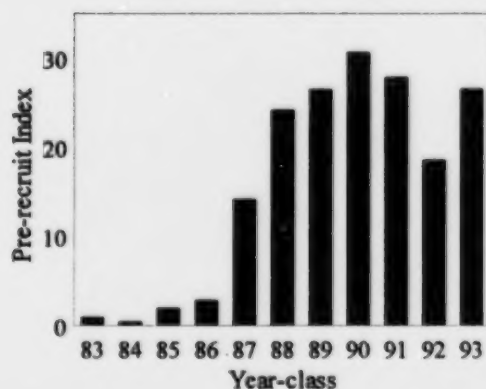


Figure 5-8.4. Indices of year-class strength for lake whitefish from index gillnetting in management area 5-8, using multi-filament nets.

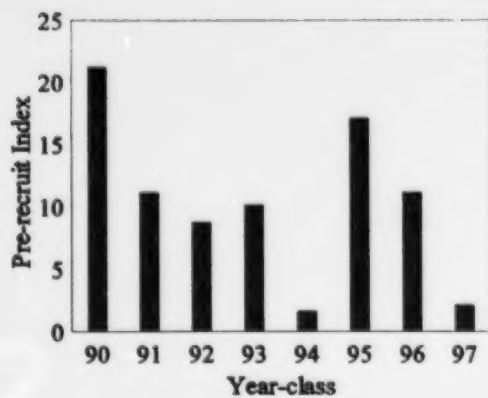


Figure 5-8.5. Indices of year-class strength for lake whitefish from index gillnetting in management area 5-8, using monofilament nets.

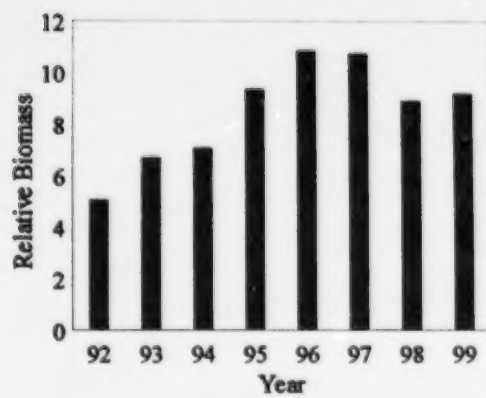


Figure 5-8.6. Exploitable biomass of whitefish (ages 4-10) in management area 5-8.

Table 5-8.2. Estimated number of lake whitefish harvested in gill nets in management area 5-8.

AGE	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	509	623	20	72	0	0	121	1229	0
4	2459	3012	3326	3838	2865	5810	5256	2874	1541
5	900	1102	2273	4883	4512	9895	14707	3541	3356
6	486	596	268	1128	2204	5774	6529	2512	2838
7	95	116	221	155	525	2886	3221	1275	1733
8	330	404	107	114	105	301	838	742	592
9	620	760	181	72	178	55	288	250	531
10	56	68	201	41	73	169	139	0	429
11	39	48	60	0	0	85	73	50	12
12	78	96	27	21	31	0	146	0	12
13	0	21	20	21	0	55	0	26	12
>13	17	0	0	0	0	0	0	26	0
Mean Age	--	5.1	5	5.1	5.2	5.3	5.5	5.7	6.6

Table 5-8.3. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in management area 5-8.

AGE	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0.0
2	0	0	0	0	0	0	0	0	0.0
3	10.1	13.7	0.4	0.7	0	0	0.4	16.0	0.0
4	49	66	59.3	35.5	31.6	27.9	25.5	37.3	28.5
5	17.9	24.2	40.5	45.2	49.8	40.4	67.7	46.0	62.2
6	9.7	13.1	4.8	10.4	24.3	20.7	28.6	32.6	52.6
7	1.9	2.6	3.9	1.4	5.8	8.5	13.9	16.6	32.1
8	6.6	8.9	1.9	1.1	1.2	2	3.5	9.6	11.0
9	12.4	16.7	3.2	0.7	2	0.5	1.1	3.3	9.8
10	1.1	1.5	3.6	0.4	0.8	0.3	0.5	0.0	7.9
11	0.8	1.1	1.1	0	0	0.2	0.3	0.7	0.2
12	1.6	2.1	0.5	0.2	0.4	0	0.6	0.0	0.2
13	0	0.5	0.4	0.2	0	0.5	0	0.3	0.2
>13	0.3	0	0	0	0	0	0	0.3	0.0

CHUB

- Quota issued was 19,985 kg.
- Total harvest increased 3% to 25,370 kg, 127% of the quota (Figure 5-8.7).
- Non-aboriginal effort decreased 6% to 244 km (Figure 5-8.8).
- Non-aboriginal harvested CPUE increased 12% to 87 kg/km (Figure 5-8.9).
- A sample of 201 chub from the harvest consisted of 5 year olds (3%), 6 year olds (21%), 7 year olds (32%), 8 year olds (31%), 9 year olds (11%), and 10 year olds and older (2%).
- Abundance appear to increase somewhat in 1998.
- Overall abundance will likely not change greatly in 1999 as the weaker 1992 and 1993 year-classes continue to make up a portion of the catch and are followed by the stronger 1994 year-class (Figures 5-8.10,5-8.11).

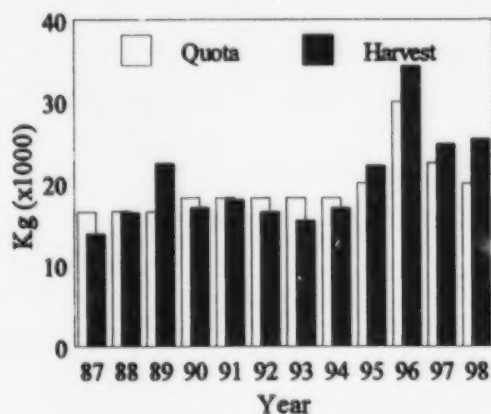


Figure 5-8.7. Chub harvest and quota (kg) for management area 5-8.

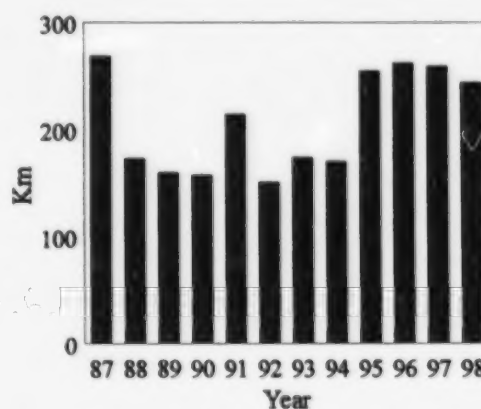


Figure 5-8.8. Chub gill net effort (km) for management area 5-8.

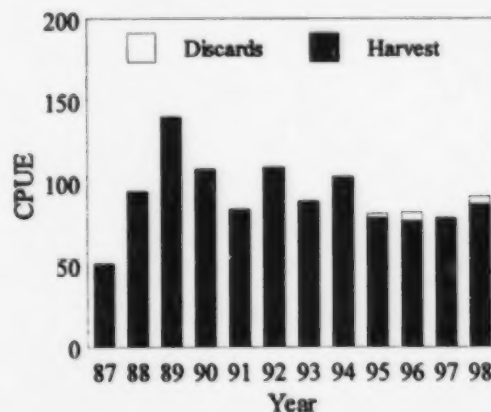


Figure 5-8.9. Chub (harvest+discards) gill net CPUE (kg/km) for management area 5-8. CPUE corrected for discarding 1995 onward.

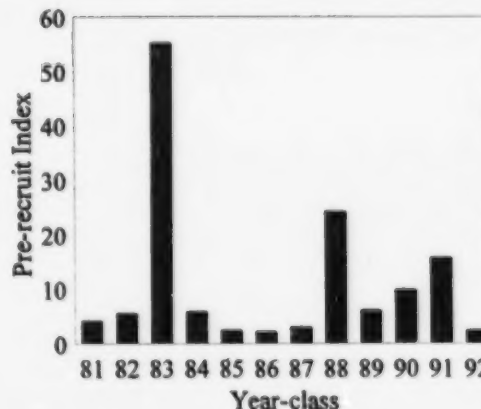


Figure 5-8.10. Indices of year-class strength for chub from index gillnetting in management area 5-8, using multi-filament nets.

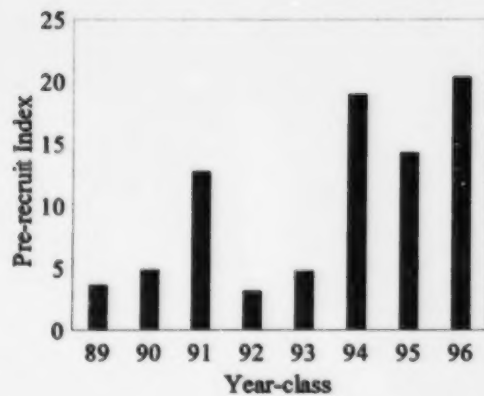


Figure 5-8.11. Indices of year-class strength for chub from index gillnetting in management area 5-8, using monofilament nets.

LAKE TROUT/BACKCROSS

- Quota was 4,536 kg (Figure 5-8.12). An additional temporary allowance of 1,625 kg was available on commercial fishing licences. The total allowable harvest was 6,161 kg (Table 5-8.1).
- The total harvest increased to 23,420 kg, 516% of the quota (Figure 5-8.12). This harvest was 380% of the total allowable harvest (Table 5-8.1).
- Total reported lake whitefish effort that harvested lake trout decreased 42% to 42 km (Figure 5-8.13). There was no reported effort targeted on lake trout.
- CPUE increased 19% to 85 kg/km (Figure 5-8.14).
- The rate of incidental lake trout harvest increased in 1998, based upon CPUE value (Figure 5-8.14).

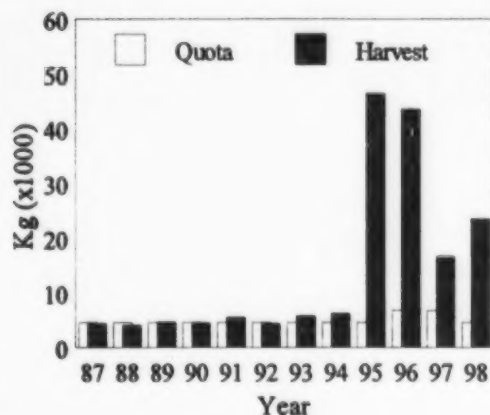


Figure 5-8.12. Lake trout/backcross quota and harvest (kg) for management area 5-8.

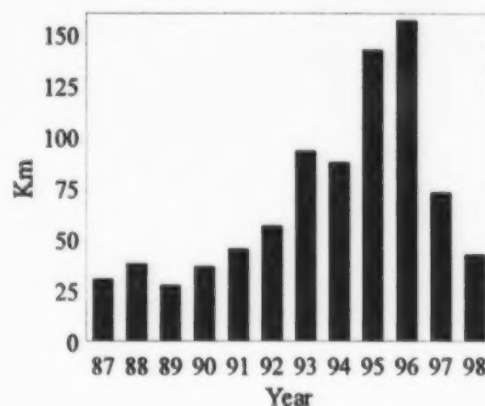


Figure 5-8.13. Lake trout/backcross gill net effort (km) for management area 5-8.

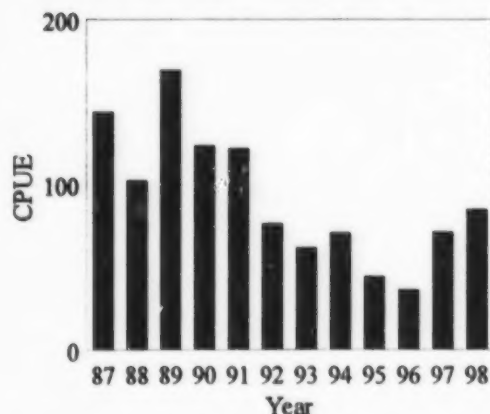


Figure 5-8.14. Lake trout/backcross gill net CPUE (kg/km) for management area 5-8.

MANAGEMENT AREA 5-9

GENERAL

- Quota issued on commercial fish licences was 93,472 kg, including a lake whitefish allowance of 2,000 kg. There was no lake trout allowance.
- Harvest of all species under quota control increased 28% to 80,064 kg (Table 5-9.1). Estimated value of these fish increased 55% to \$233,919.
- Harvest and estimated value of all species sold was 80,160 kg and \$233,974, respectively (Table 5-9.1). An additional 9,672 kg of fish of no commercial value was reported caught.

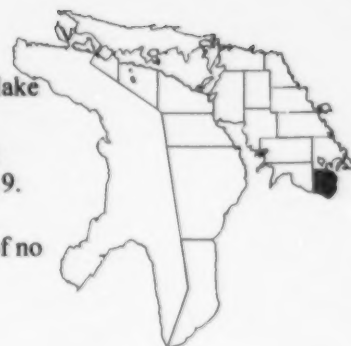


Table 5-9.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 5-9 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	unlimited	112	--	112	188
Chub	9,958	5,266	52.9	5,357	16,112
Lake Sturgeon	136	44	32.4	1,291	133
Lake Trout	4,882	3,442	70.5	3,549	10,176
Lake Whitefish	74,267	71,124	95.8	71,124	207,039
Northern Pike	0	0	0.0	0	0
Walleye	820	76	9.3	76	271
Yellow Perch	3,409	0	0.0	0	0
Brown Trout		0		11	0
Burbot		0		2,477	0
Chinook Salmon		10		23	0
Lake Herring		4		4	6
Rainbow Trout		0		7	0
Redfin Suckers		0		5	0
Round Whitefish		82		82	49
Suckers		0		5,713	0
White Bass		0		1	0
Total	93,472	80,160		89,832	233,974

LAKE WHITEFISH

- The quota issued was 72,267 kg (Figure 5-9.1), with an additional temporary allowance of 2,000 kg for a total allowable harvest of 74,267 kg..
- The harvest increased by 43% to 71,124 kg, 98% of the quota (Figure 5-9.1) and 96% of the total allowable harvest.
- Gill net effort increased 56% to 238 km (Figure 5-9.2).
- CPUE increased by 1% to 327 kg/km (Figure 5-9.3).
- Commercial catch sampling indicated that age 5 (29%), 6 (23%), and 7 (22%) fish dominated the catch in 1998, with a mean age of 6.4 years for harvested whitefish.
- Abundance should remain relatively high in 1999 based on several strong year-classes in the fishery (Figures 5-8.4,5-8.5).

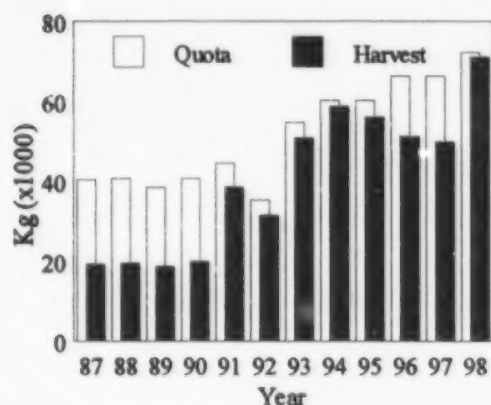


Figure 5-9.1. Lake whitefish quota and harvest (kg) for management area 5-9.

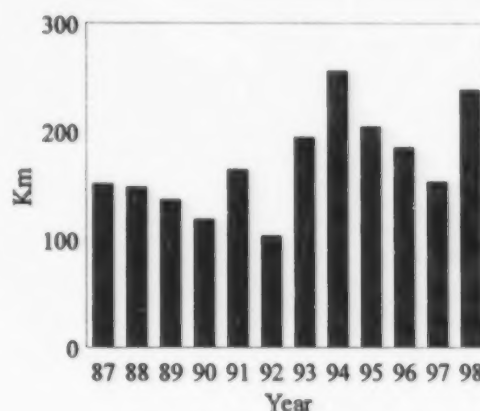


Figure 5-9.2. Lake whitefish gill net effort (km) for management area 5-9.

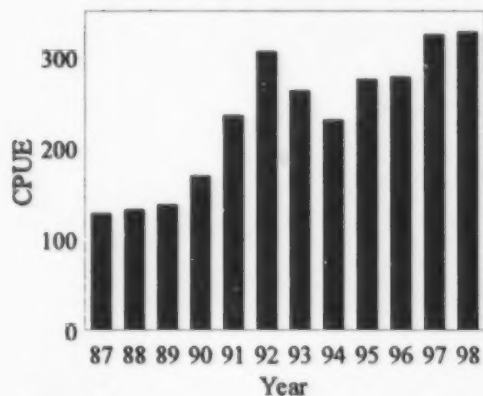


Figure 5-9.3. Lake whitefish gill net CPUE (kg/km) for management area 5-9.

CHUB

- Quota issued was 9,958 kg.
- Harvest decreased 44% to 5,266 kg, 53% of the quota (Figure 5-9.4).
- Effort decreased 19% to 119 km (Figure 5-9.5).
- CPUE decreased 31% to 44 kg/km (Figure 5-9.6).
- Commercial catch sampling indicated that the harvest consisted of 12% age 5, 41% age 6, 29% age 7, 16% age 8, 1% age 9, and 1% age 10 year old fish in 1998.
- Abundance should not change significantly in 1999. Relatively weaker year-classes will likely be offset by the stronger recruiting 1994 year-class (Figure 5-8.11).

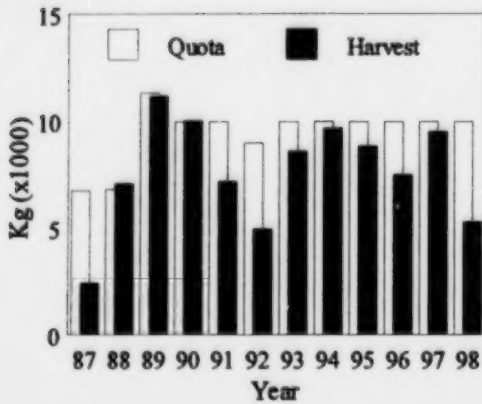


Figure 5-9.4. Chub quota and harvest (kg) for management area 5-9.

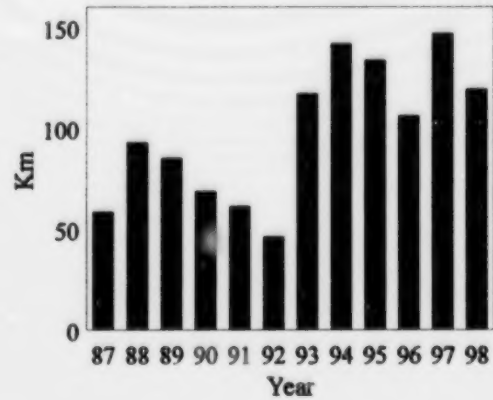


Figure 5-9.5. Chub gill net effort (km) for management area 5-9.

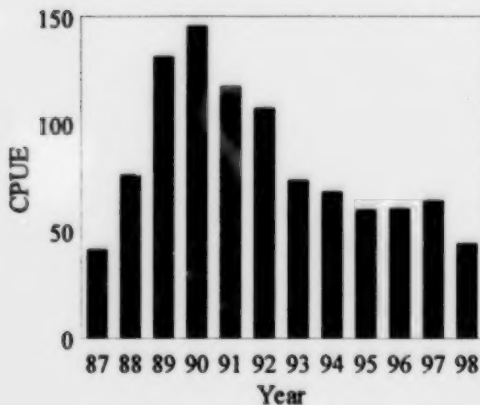


Figure 5-9.6. Chub gill net CPUE (kg/km) for management area 5-9.

LAKE TROUT/BACKCROSS

- Quota was 4,882 kg. There was no additional lake trout allowance.
- The harvest increased 31% to 3,442 kg, 71% of the quota (Figure 5-9.7).
- Effort increased 38% to 186 km (lake whitefish effort which harvested lake trout) (Figure 5-9.8).
- CPUE decreased 11% to 17 kg/km (Figure 5-9.9).
- No prediction regarding abundance can be made given the amount of information available.

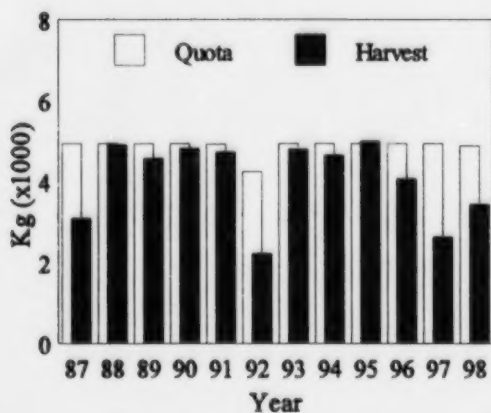


Figure 5-9.7. Lake trout/backcross quota and harvest (kg) for management area 5-9.

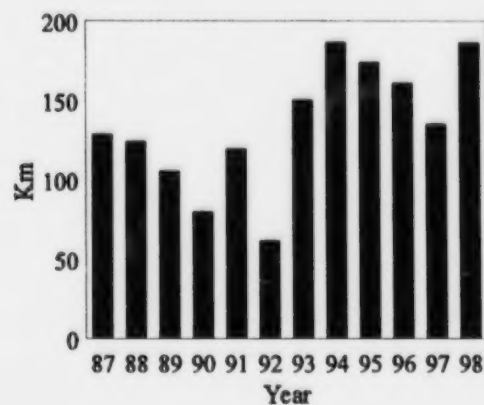


Figure 5-9.8. Lake trout/backcross gill net effort (km) for management area 5-9.

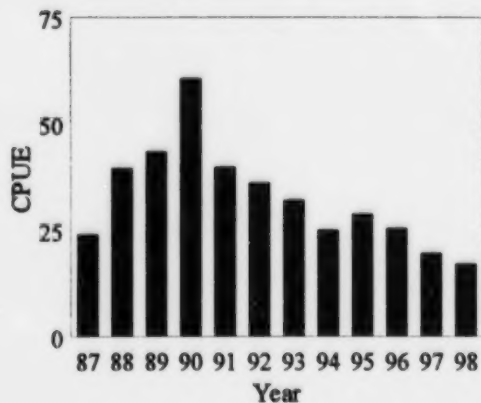


Figure 5-9.9. Lake trout/backcross gill net CPUE (kg/km) for management area 5-9.

NORTH CHANNEL



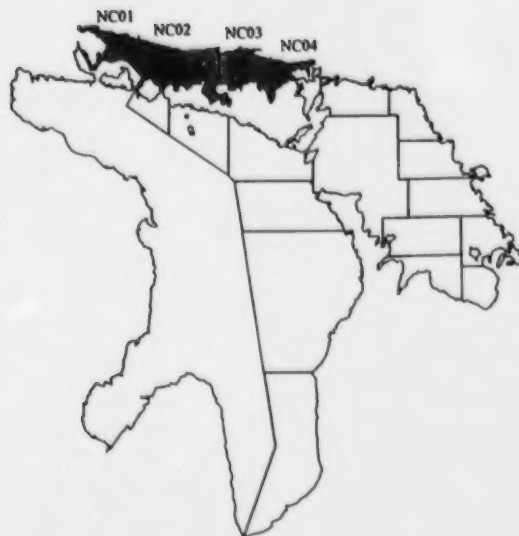
GENERAL

- Total quota (including lake trout allowance) issued on commercial fish licences and held by the Crown in the North Channel was 429,674 kg (Table 6.1).
- Harvest of all fish species under quota control increased 14% to 307,318 kg. Estimated value of the harvest of species under quota control increased 30% to \$689,398.
- Total harvest and estimated value of all fish species was 327,711 kg and \$705,543, respectively (Table 6.1). An additional 38,073 kg of fish of no commercial value was reported caught.

Table 6.1. Quota, harvest, percent quota taken, catch, and estimated value by species for the North Channel of Lake Huron in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	10,234	2	<0.1	2	1
Chub	0	1	--	1	0
Lake Sturgeon	6,613	1,590	24.0	2,519	9,317
Lake Trout	14,022	9,583	68.3	10,260	16,796
Lake Whitefish	318,778	280,369	88.0	280,948	587,084
Northern Pike	16,826	819	4.9	838	1,164
Walleye	16,884	5,980	35.4	6,304	27,665
Yellow Perch	46,317	8,974	19.4	8,974	47,371
Alewife		0		30	0
Brown Trout		6		15	0
Burbot		10		906	0
Chinook Salmon		454		3,654	0
Common Carp		753		804	420
Lake Herring		10,834		11,223	8,848
Pink Salmon		1,508		2,958	1,694
Rainbow Smelt		3,366		3,718	3,448
Rainbow Trout		45		283	0
Round Whitefish		1,971		2,320	1,274
Suckers		1,444		25,163	461
White Bass		2		25	0
Other/Mixed		0		4,839	0
Total	429,674	327,711		365,784	705,543

MANAGEMENT AREA 6-1



GENERAL

- Final quota available on commercial fishing licences was 373,716 kg. An additional 50,250 kg of quota was held by the Crown. This included a lake trout allowance of 4,528 kg, of which 4,365 kg was available on commercial fishing licences.
- Harvest of all fish species under quota control increased 14% to 306,763 kg (Table 6-1.1). Estimated value of the harvest of species under quota control increased 29% to \$668,378.
- Harvest and estimated value of all fish species sold was 327,139 kg and \$704,508, respectively (Table 6-1.2). An additional 38,073 kg of fish of no commercial value was reported caught.
- Data reported for assessment area NC03 in this management area section and the corresponding tables in Appendix 1, include data from assessment area NC04.

Table 6-1.1. Quota, harvest, and percent quota taken by quota species for management area 6-1 in 1998.

Species	Quota			Harvest L.C.F. Total (kg)	% Quota Taken	
	Total	L.C.F.	L.C.F.		L.C.F.	L.C.F.
	(kg)	Original (kg)	Final (kg)		Original	Final
Channel Catfish	10,007	5,636	5,636	2	<0.1	<0.1
Chub	0	0	0	1	--	--
Lake Sturgeon	6,613	4,985	4,985	1,589	31.9	31.9
Lake Trout	13,250	8,687	10,102	9,557	110.0	94.6
Lake Whitefish	314,960	214,489	307,458	279,843	130.5	91.0
Northern Pike	16,490	8,692	8,692	819	9.4	9.4
Walleye	16,884	9,524	9,524	5,978	62.8	62.8
Yellow Perch	45,694	27,319	27,319	8,974	32.8	32.8
Total	423,898	279,332	373,716	306,763		

Note: L.C.F. = Licenced Commercial Fishery

Final = Original issued quota plus quota leased back from Crown

Table 6-1.2. Harvest, catch, and estimated value by species for management area 6-1 in 1998.

Species	Harvest (kg)	Catch (kg)	Value (\$)
Alewife	0	30	0
Brown Trout	6	15	0
Burbot	10	906	0
Channel Catfish	2	2	1
Chinook Salmon	454	3,654	0
Chub	1	1	0
Common Carp	753	804	420
Lake Herring	10,826	11,215	8,843
Lake Sturgeon	1,589	2,518	9,311
Lake Trout	9,557	10,234	16,757
Lake Whitefish	279,843	280,422	586,114
Northern Pike	819	838	1,164
Pink Salmon	1,508	2,958	1,694
Rainbow Smelt	3,366	3,718	3,448
Rainbow Trout	45	283	0
Round Whitefish	1,962	2,311	1,264
Suckers	1,444	25,163	461
Walleye	5,978	6,302	27,660
White Bass	2	25	0
Yellow Perch	8,974	8,974	47,371
Other/Mixed	0	4,839	0
Total	327,139	365,212	704,508

LAKE WHITEFISH

- The final quota available on commercial fishing licences was 307,458 kg. An additional 7,502 kg was held by the Crown (Table 6-1.1). The total of these two amounts was 314,960 kg.
- The harvest increased 14% to 279,843 kg, 91% of the available quota. This harvest was 89% of the total quota, including Crown held quota (Figure 6-1.1). The gill net fishery accounted for 100% of the harvest (Appendix 1, Table A1-48).
- Gill net effort increased 21% to 2,528 km (Figure 6-1.4). No trap net effort was reported.
- The gill net CPUE over all three subareas decreased 6% to 111 kg/km (Appendix 1, Table A1-49).
- The mean age of whitefish harvested in gill nets in NC01 (6.0 years) was similar to NC02 (6.2 years) and older than in NC03 (5.3 years) (Tables 6-1.3, 6-1.4, 6-1.6).
- Abundance appeared to decrease slightly in 1998, based on CPUE.
- CPUE of 3 and 4 year olds (1995 and 1994 year-classes) were lower than expected (Tables 6-1.9, 6-1.11).
- Exploitable biomass is not expected to increase in 1999 due primarily to the apparently poor 1994 and 1995 year-classes (Figures 6-1.8, 6-1.9).

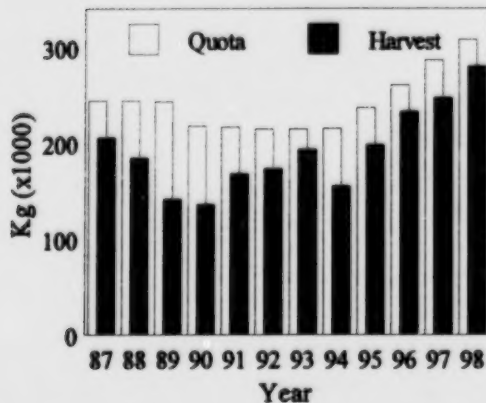


Figure 6-1.1. Lake whitefish quota and harvest (kg) for management area 6-1.

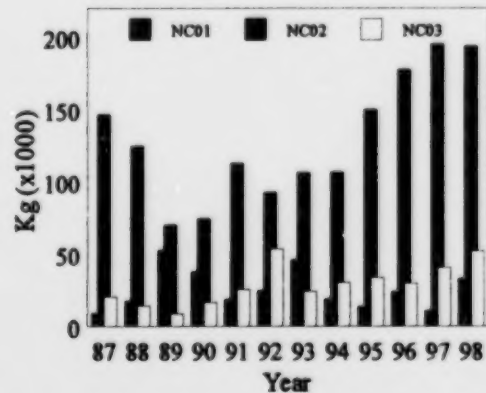


Figure 6-1.2. Lake whitefish gill net harvest (kg) by subarea for management area 6-1.

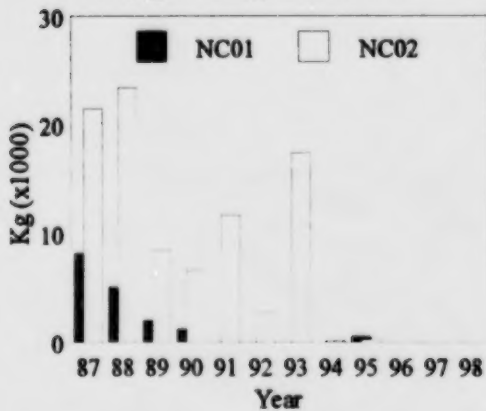


Figure 6-1.3. Lake whitefish trap net harvest (kg) by subarea for management area 6-1.

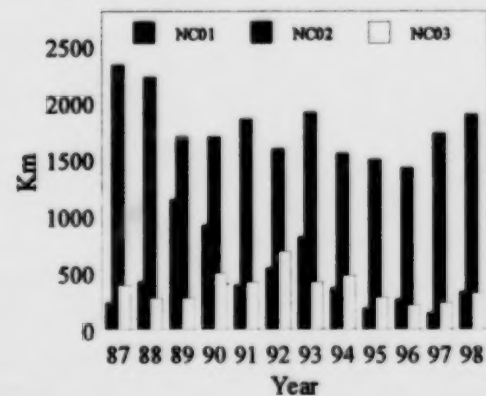


Figure 6-1.4. Lake whitefish gill net effort (km) for management area 6-1.

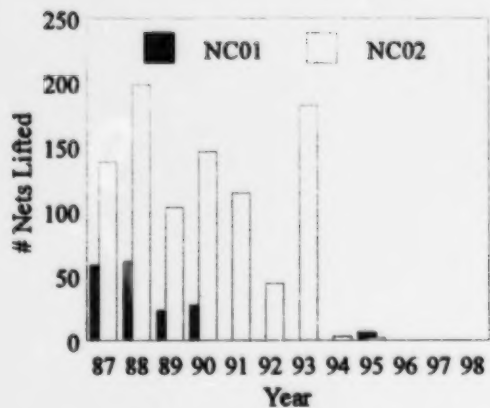


Figure 6-1.5. Lake whitefish trap net effort by subarea for management area 6-1.

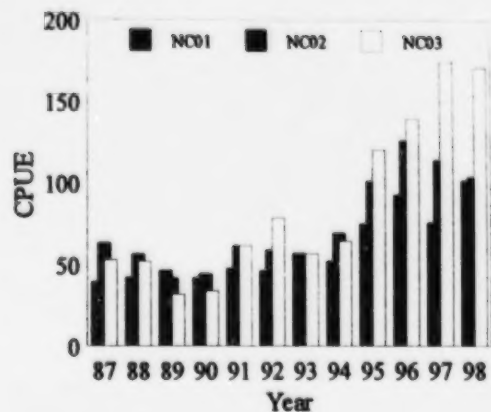


Figure 6-1.6. Lake whitefish gill net CPUE (kg/km) by subarea for management area 6-1.

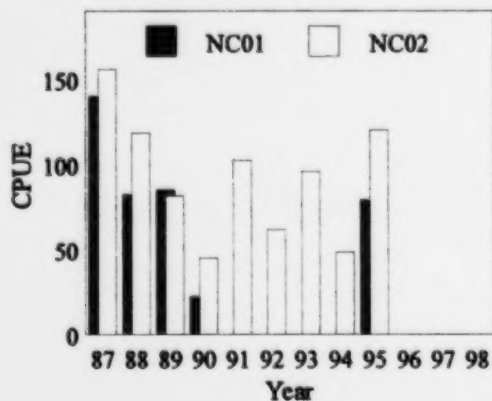


Figure 6-1.7. Lake whitefish trap net CPUE (kg/net) by subarea for management area 6-1.

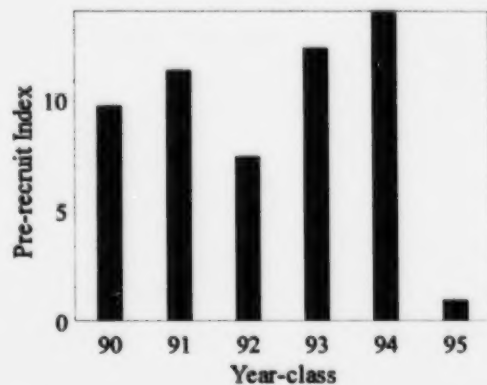


Figure 6-1.8. Lake whitefish year-class strength from index fishing in management area 6-1, 1993-1996.

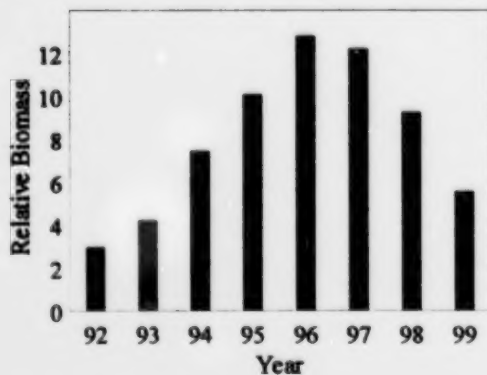


Figure 6-1.9. Exploitable biomass of whitefish (ages 4-10) in management area 6-1.

Table 6-1.3. Estimated number of lake whitefish harvested in gill nets in assessment area NC01 (subarea of management area 6-1).

AGE	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	104	259	409	0	0	0	0	0	0
4	2192	3783	1647	1642	503	669	348	147	1554
5	2923	1088	8198	9812	4494	2706	4318	970	8954
6	6681	622	2232	13842	5417	3136	5363	2097	8003
7	5637	725	978	2308	2328	1936	3621	1505	4010
8	3236	466	1928	1356	394	848	2716	1306	1784
9	2297	363	1200	1176	143	189	767	719	636
10	2714	104	783	700	178	0	279	116	425
11	209	259	591	413	71	0	0	178	105
12	0	104	729	476	249	0	0	61	0
13	104	0	37	530	356	0	0	31	0
>13	0	0	37	180	143	0	0	59	0
Mean Age	6.9	5.4	6.3	6.2	6.5	6.0	6.4	6.3	6.0

Table 6-1.4. Estimated number of lake whitefish harvested in gill nets in assessment area NC02 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	243	94	0	622	0	46	0	0	322	0
3	3591	2762	9679	19876	6370	4932	8616	7411	2310	2263	7941	0
4	22841	29131	6504	14573	55907	32754	33419	35219	46916	27470	30774	19980
5	38994	30001	17071	5463	8960	19314	23243	20920	35412	52522	39931	35392
6	13888	17101	8976	5922	1155	2399	7692	6921	19458	21860	31407	38818
7	3741	4804	3571	3323	821	752	1103	2157	6609	11410	18608	29684
8	1470	750	767	1018	837	340	155	732	1623	2854	4971	16555
9	180	0	313	425	433	115	77	0	308	781	783	1713
10	30	0	179	284	76	187	155	46	54	157	522	572
11	30	0	0	0	0	0	0	61	61	176	0	0
12	0	0	0	0	0	0	135	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	85	0	0
>13	0	0	0	0	0	0	0	0	0	0	36	0
Mean Age	5.0	4.9	4.9	4.3	4.2	4.4	4.4	4.5	4.9	5.2	5.0	6.2

Table 6-1.5. Estimated number of lake whitefish harvested in trap nets in assessment area NC02 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0					
2	0	101	66	351	0	0	0					
3	204	663	617	2916	1432	19	577					
4	3089	5997	779	1186	6847	1170	4918	N	N	N	N	N
5	5416	8080	2030	786	754	1073	6406	O	O	O	O	O
6	4828	3399	1969	1043	195	97	1817					
7	2304	709	612	365	300	0	325	D	D	H	H	H
8	548	936	154	274	109	0	66	A	A	A	A	A
9	0	0	245	239	56	0	52	T	T	R	R	R
10	0	0	48	286	0	0	208	A	A	V	V	V
11	0	0	0	36	0	0	0			E	E	E
12	47	0	10	0	0	0	52			S	S	S
13	0	0	0	6	0	0	0			T	T	T
>13	0	0	0	0	0	0	0					
Mean Age	5.3	4.9	5.5	5.4	4.2	4.4	4.8					

Table 6-1.6. Estimated number of lake whitefish harvested in gill nets in assessment area NC03 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0		0	0	0	0	0	0	0	0
2	0	0	0		0	0	0	0	0	0	0	0
3	764	59	567		1237	1680	2168	2752	1100	274	390	0
4	7510	2773	680	N	13321	20035	6200	10165	16553	8851	10417	6993
5	8741	2408	823	O	1456	11290	4051	2753	5750	9700	8415	9175
6	5590	452	677		171	1297	1773	2981	1251	1663	6347	8202
7	960	118	450	D	516	240	144	382	170	592	2017	10078
8	714	0	129	A	171	337	54	76	169	198	254	2241
9	345	0	242	T	234	0	0	0	84	0	187	88
10	0	59	66	A	140	0	0	0	0	0	17	30
11	0	0	0		140	0	0	0	0	0	0	0
12	0	0	0		140	120	0	0	0	0	0	0
13	0	0	0		0	0	0	0	0	0	0	0
>13	0	0	0		47	0	0	0	0	0	0	0
Mean Age	5.1	4.7	5.2		4.5	4.4	4.4	4.4	4.3	4.7	5.2	5.3

Table 6-1.7. Estimated number of harvested and released lake whitefish caught in trap nets in assessment area NC02 (subarea of management area 6-1).

AGE	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	12	0	13	0	0					
2	440	396	947	553	23	1959					
3	1792	965	5769	3360	1110	5168	N	N	N	N	N
4	7013	875	1641	7927	1449	8069	O	O	O	O	O
5	8645	2110	873	811	1073	7106					
6	3399	1969	1110	195	97	1817	D	D	H	H	H
7	2304	612	365	300	0	325	A	A	A	A	A
8	548	169	274	109	0	66	T	T	R	R	R
9	0	245	239	56	0	52	A	A	V	V	V
10	0	48	296	0	0	208			E	E	E
11	0	0	36	0	0	0			S	S	S
12	47	10	0	0	0	52			T	T	T
13	0	0	6	0	0	0					
>13	0	0	0	0	0	0					
Mean Age	4.7	4.9	4.8	3.9	4.1	4.4					

Table 6-1.8. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in assessment area NC01 (subarea of management area 6-1).

AGE	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.1	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0
4	2.4	13.3	2.8	2.1	1.4	3.7	1.4	1.1	4.9
5	3.2	3.8	14.2	12.6	12.5	15.0	16.7	7.0	28.2
6	7.3	2.2	3.9	17.8	15.0	17.4	20.7	15.0	25.2
7	6.2	2.6	1.7	3.0	6.5	10.8	14.0	10.8	12.6
8	3.6	1.6	3.3	1.7	1.1	4.7	10.5	9.4	5.6
9	2.5	1.3	2.1	1.5	0.4	1.1	3.0	5.2	2.0
10	3.0	0.4	1.4	0.9	0.5	0.0	1.1	0.8	1.3
11	0.2	0.9	1.0	0.5	0.2	0.0	0.0	1.3	0.3
12	0.0	0.4	1.3	0.6	0.7	0.0	0.0	0.4	0.0
13	0.1	0.0	0.1	0.7	1.0	0.0	0.0	0.2	0.0
>13	0.0	0.0	0.1	0.2	0.4	0.0	0.0	0.4	0.0

Table 6-1.9. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in assessment area NC02 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.1	0.1	0.0	0.4	0.0	0.1	0.0	0.0	0.2	0.0
3	1.5	1.2	5.7	11.8	3.5	3.1	4.5	4.8	1.6	1.6	4.6	0.0
4	9.8	13.1	3.9	8.6	30.4	20.7	17.5	22.8	31.5	19.4	18.0	10.7
5	16.8	13.5	10.1	3.2	4.9	12.2	12.2	13.6	23.8	37.1	23.2	18.9
6	6.0	7.7	5.3	3.5	0.6	1.5	4.0	4.5	13.1	15.5	18.3	20.8
7	1.6	2.2	2.1	2.0	0.5	0.5	0.6	1.4	4.4	8.1	10.8	15.9
8	0.6	0.3	0.5	0.6	0.5	0.2	0.1	0.5	1.1	2.0	2.9	8.9
9	0.1	0.0	0.2	0.3	0.2	0.1	0.1	0.0	0.2	0.6	0.5	0.9
10	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3
11	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6-1.10. CPUE-at-age (number/net lift) for lake whitefish harvested in trap nets in assessment area NC02 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
2	0.0	0.5	0.6	2.4	0.0	0.0	0.0					
3	1.5	3.4	6.0	20.0	12.6	0.4	3.2	N	N	N	N	N
4	22.4	30.3	7.6	8.1	60.1	26.6	27.0	O	O	O	O	O
5	39.3	40.8	19.7	5.4	6.6	24.4	35.2					
6	35.0	17.2	19.1	7.1	1.7	2.2	10.0	D	D	H	H	H
7	16.7	3.6	5.9	2.5	2.6	0.0	1.8	A	A	A	A	A
8	4.0	4.7	1.5	1.9	1.0	0.0	0.4	T	T	R	R	R
9	0.0	0.0	2.4	1.6	0.5	0.0	0.3	A	A	V	V	V
10	0.0	0.0	0.5	2.0	0.0	0.0	1.1			E	E	E
11	0.0	0.0	0.0	0.3	0.0	0.0	0.0			S	S	S
12	0.3	0.0	0.1	0.0	0.0	0.0	0.3			T	T	T
13	0.0	0.0	0.0	0.1	0.0	0.0	0.0					
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0					

Table 6-1.11. CPUE-at-age (number/km) for lake whitefish harvested in gill nets in assessment area NC03 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.3	0.3	2.6		3.0	2.5	5.4	6.1	3.9	1.3	1.7	0.0
4	22.2	13.0	3.1	N	32.2	29.3	15.5	22.6	59.1	41.4	44.7	23.0
5	25.8	11.3	3.8	O	3.5	16.5	10.1	6.1	20.5	45.3	36.1	30.2
6	16.5	2.1	3.1		0.4	1.9	4.4	6.6	4.5	7.8	27.3	27.0
7	2.8	0.6	2.1	D	1.3	0.4	0.4	0.9	0.6	2.8	8.7	33.2
8	2.1	0.0	0.6	A	0.4	0.5	0.1	0.2	0.6	0.9	1.1	7.4
9	1.0	0.0	1.1	T	0.6	0.0	0.0	0.0	0.3	0.0	0.8	0.3
10	0.0	0.3	0.3	A	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.1
11	0.0	0.0	0.0		0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0		0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>13	0.0	0.0	0.0		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6-1.12. CPUE-at-age (number/net lift) for harvested and released lake whitefish caught in trap nets in assessment area NC02 (subarea of management area 6-1).

AGE	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.1	0.0	0.1	0.0	0.0					
2	2.2	3.8	9.2	4.9	0.5	10.8					
3	9.1	9.4	56.0	29.5	25.2	28.4	N	N	N	N	N
4	35.4	8.5	15.9	69.5	32.9	44.3	O	O	O	O	O
5	43.7	20.5	8.5	7.1	24.4	39.0					
6	17.2	19.1	10.8	1.7	2.2	10.0	D	D	H	H	H
7	3.6	5.9	3.5	2.6	0.0	1.8	A	A	A	A	A
8	4.7	1.6	2.7	1.0	0.0	0.4	T	T	R	R	R
9	0.0	2.4	2.3	0.5	0.0	0.3	A	A	V	V	V
10	0.0	0.5	2.9	0.0	0.0	1.1			E	E	E
11	0.0	0.0	0.3	0.0	0.0	0.0			S	S	S
12	0.0	0.1	0.0	0.0	0.0	0.3			T	T	T
13	0.0	0.0	0.0	0.0	0.0	0.0					
>13	0.0	0.0	0.0	0.0	0.0	0.0					

YELLOW PERCH

- The final quota available on commercial fishing licences was 27,319 kg. An additional 18,375 kg was held by the Crown (Table 6-1.1). The total of these two amounts was 45,694 kg.
- Harvest increased 34% to 8,974 kg, 33% of the available quota. This harvest was 20% of the total quota, including Crown held quota (Figure 6-1.10). Most of the harvest (99%) came out of NC03 (Figure 6-1.11).
- Gill net effort increased 23% to 280 km total for all assessment areas (Figure 6-1.12).
- Area-wide gill net CPUE increased 7% to 32 kg/km (Appendix 1, Table A1-51).
- The harvest was supported mainly by the 1993, 1994, and 1995 year-classes both in NC02 and NC03 (Tables 6-1.13, 6-1.14).
- Abundance did not appear to change greatly in 1998 due to the contributions from three year-classes (Tables 6-1.15, 6-1.16).
- Overall abundance should not change greatly in 1999 as the relatively good 1993 year-class is followed by several moderate year-classes (Figure 6-1.15).

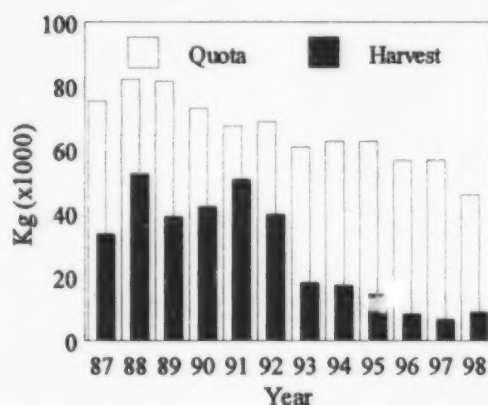


Figure 6-1.10. Yellow perch harvest and quota (kg) for management area 6-1.

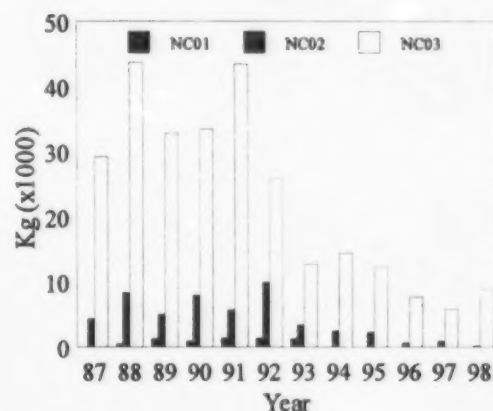


Figure 6-1.11. Yellow perch harvest (kg) by subarea for management area 6-1.

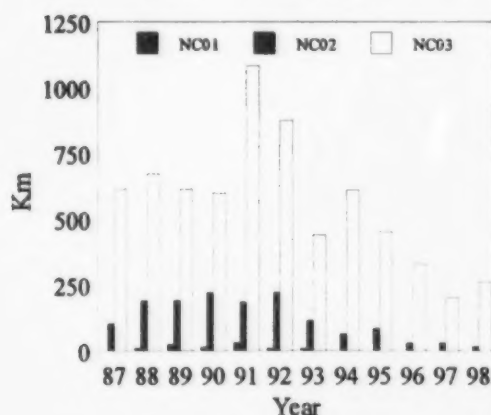


Figure 6-1.12. Yellow perch gill net effort (km) by subarea for management area 6-1.

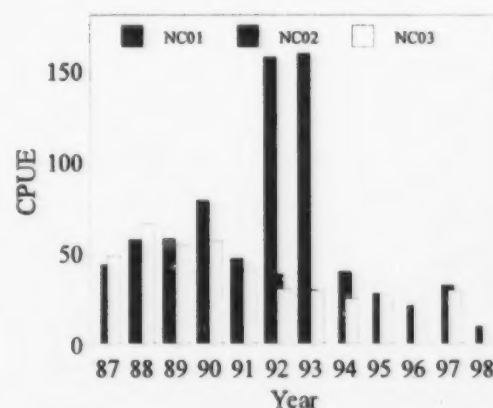


Figure 6-1.13. Yellow perch gill net CPUE (kg/km) by subarea for management area 6-1.

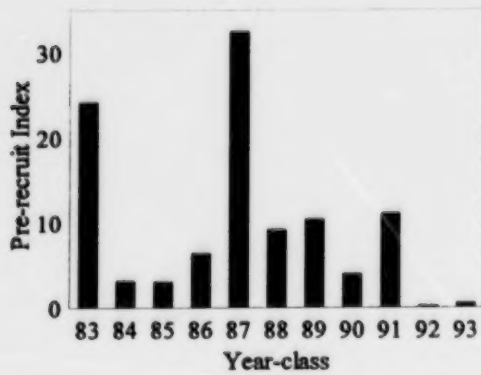


Figure 6-1.14. Indices of year-class strength for yellow perch from index gillnetting in management area 6-1, using multi-filament nets.

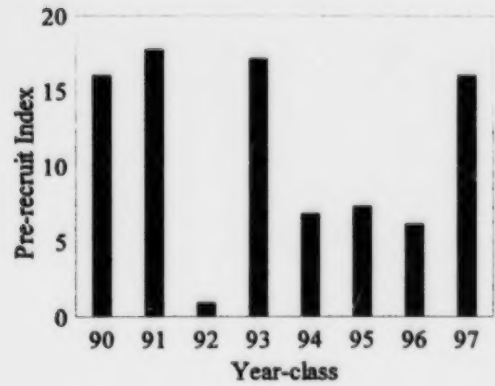


Figure 6-1.15. Indices of year-class strength for yellow perch from index gillnetting in management area 6-1, using monofilament nets.

Table 6-1.13. Estimated number of yellow perch harvested in gill nets in assessment area NC02 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	702	138	51	0	0	769	47	28	3	16
3	7	0	1681	4715	1336	3757	211	2533	2243	806	178	251
4	237	1608	4005	9445	12453	14740	4842	1328	3413	183	1090	191
5	3440	7570	9995	13771	13157	31297	3496	1392	1053	1181	1085	94
6	9734	16532	4955	8040	3872	8784	7035	1897	2634	195	895	21
7	6971	13163	3816	2642	738	1343	1257	898	2274	433	781	7
8	1667	887	1271	2172	872	431	265	133	934	140	398	1
9	0	733	274	327	288	403	71	33	0	0	163	2
10	61	0	176	107	67	0	0	0	0	34	0	0
11	61	0	0	0	0	0	0	0	0	0	0	0
12	0	0	196	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
>13	0	0	0	0	0	0	0	0	0	0	0	0
Mean Age	6.1	6.0	5.1	4.8	4.7	4.8	5.3	4.6	5.0	5.1	5.9	3.8

Table 6-1.14. Estimated number of yellow perch harvested in gill nets in assessment area NC03 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	903	1442	0	0	88	438	470	1747	41	1207
3	260	4046	25477	81321	17795	11176	4494	17387	5059	16522	3533	17385
4	41026	28208	70650	26633	202150	54531	34498	21926	37680	8502	17040	10916
5	34846	69761	21365	22621	19866	66174	19256	26720	15381	8169	4215	6108
6	7743	30046	12609	6128	4611	4143	12539	16268	8354	3027	3296	1547
7	6444	7129	2822	3781	1498	3415	1684	3072	1678	2160	1792	635
8	915	1896	433	742	471	666	235	2294	0	787	1020	148
9	632	2594	282	0	0	460	0	0	0	0	297	191
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
>13	0	0	0	0	0	0	0	0	0	0	0	0
Mean Age	4.9	5.2	4.3	3.8	4.1	4.5	4.6	4.6	4.5	3.9	4.3	3.8

Table 6-1.15. CPUE-at-age (number/km) for yellow perch harvested in gill nets in assessment area NC02 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	3.7	0.6	0.3	0.0	0.0	12.5	0.6	1.1	0.1	1.1
3	0.1	0.0	9.0	21.5	7.4	17.1	1.9	41.3	27.3	30.4	6.7	17.9
4	2.4	8.6	21.3	43.2	68.6	67.0	42.7	21.6	41.6	6.9	41.1	13.6
5	34.3	40.5	53.2	62.9	72.5	142.1	30.8	22.7	12.8	44.5	40.9	6.7
6	97.2	88.4	26.4	36.7	21.3	39.9	62.0	30.9	32.1	7.4	33.7	1.5
7	69.6	70.4	20.3	12.1	4.1	6.1	11.1	14.6	27.7	16.3	29.4	0.5
8	16.6	4.7	6.8	9.9	4.8	2.0	2.3	2.17	11.4	5.3	15.0	0.1
9	0.0	3.9	1.5	1.5	1.6	1.8	0.6	0.5	0.0	0.0	6.1	0.1
10	0.7	0.0	0.9	0.5	0.4	0.0	0.0	0.0	0.0	1.3	0.0	0.0
11	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6-1.16. CPUE-at-age (number/km) for yellow perch harvested in gill nets in assessment area NC03 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	1.7	2.9	0.0	0.0	0.2	0.7	1.0	5.3	0.2	4.6
3	0.5	6.8	47.6	162.9	16.8	12.8	10.3	28.5	11.2	50.4	17.7	66.6
4	84.1	47.5	132.1	53.4	190.3	62.3	78.8	36.0	83.5	25.9	85.2	41.8
5	71.4	117.4	39.9	45.3	18.7	75.6	44.0	43.8	34.1	24.9	21.1	23.4
6	15.9	50.6	23.6	12.3	4.3	4.7	28.6	26.7	18.5	9.2	16.5	5.9
7	13.2	12.0	5.3	7.6	1.4	3.9	3.8	5.0	3.7	6.6	9.0	2.4
8	1.9	3.2	0.8	1.5	0.4	0.8	0.5	3.8	0.0	2.4	5.1	0.6
9	1.3	4.4	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.5	0.7
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

WALLEYE

- The final quota available on commercial fishing licences was 9,524 kg. An additional 7,360 kg was held by the Crown. The total of these two amounts was 16,884 kg (Table 6-1.1).
- Harvest increased 23% to 5,978 kg, 63% of the available quota. This harvest was 35% of the total quota, including Crown held quota (Figure 6-1.16). Most of the harvest (81%) occurred in NC01 (Figure 6-1.17).
- Gill net effort increased 13% to 129 km total over all assessment areas (Figure 6-1.18).
- Gill net CPUE increased in all assessment areas, most notably in NC02 (Figure 6-1.19).
- Abundance appeared to increase somewhat in NC01, NC02, and NC03 in 1998.
- Fish aged 7 to 10 years old were the most abundant age classes in the harvest in NC01 (Tables 6-1.17, 6-1.18).
- The limited effort in NC02 and NC03 make predicting abundance difficult. Based upon NC01 information, abundance may decline somewhat in 1999, since age 6 and younger fish appeared to be less abundant in 1998 than in most previous years (Table 6-1.18).

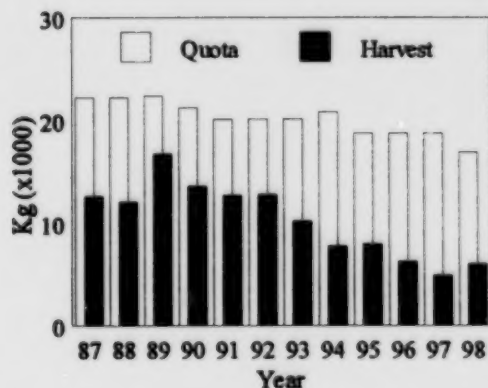


Figure 6-1.16. Walleye quota and harvest (kg) for management area 6-1.

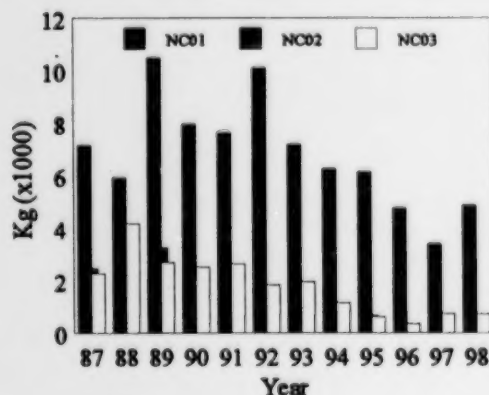


Figure 6-1.17. Walleye harvest (kg) by subarea for management area 6-1.

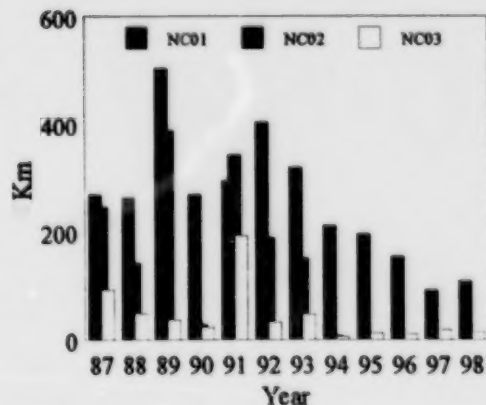


Figure 6-1.18. Walleye annual gill net effort (km) by subarea for management area 6-1.

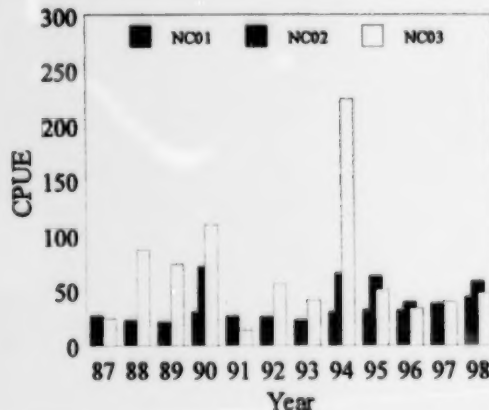


Figure 6-1.19. Walleye gill net CPUE (kg/km) by subarea for management area 6-1.

Table 6-1.17. Estimated number of walleye harvested in gill nets in assessment area NC01 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1		0	0	0	0		0	0	0	0	0	0
2		94	0	29	0		0	0	0	0	30	0
3		0	37	0	307		0	33	48	0	12	0
4	N	436	53	351	632	N	490	227	288	102	33	14
5	O	578	1183	556	602	O	2445	1396	721	1229	217	42
6		1607	597	1552	1063		669	1915	620	839	380	214
7	D	891	1684	351	1147	D	97	194	1103	348	223	700
8	A	245	1012	937	97	A	130	163	298	471	207	572
9	T	65	520	322	308	T	98	98	188	41	315	301
10	A	8	728	176	50	A	65	33	158	21	91	243
11		125	297	88	134		17	0	183	21	76	71
12		27	332	117	87		0	33	110	0	79	71
13		6	148	176	43		32	0	169	0	49	58
>13		15	73	29	43		32	0	37	0	82	29
Mean Age		7.5	7.7	7.1	6.0		5.5	5.8	7.8	6.1	8.9	8.2

Table 6-1.18. CPUE-at-age of walleye harvested in gill nets in assessment area NC01 (subarea of management area 6-1).

AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
2		0.4	0.0	0.1	0.0		0.0	0.0	0.0	0.0	0.3	0.0
3		0.0	0.1	0.0	1.1		0.0	0.2	0.3	0.0	0.1	0.0
4	N	1.7	0.1	1.3	2.2	N	1.7	1.1	1.5	0.7	0.4	0.2
5	O	2.2	2.4	2.1	2.1	O	8.5	6.6	3.7	8.0	2.4	0.5
6		6.1	1.2	5.8	3.8		2.3	9.1	3.2	5.5	4.2	2.4
7	D	3.4	3.4	1.3	4.1	D	0.3	0.9	5.7	2.3	2.5	7.8
8	A	0.9	2.0	3.5	0.3	A	0.5	0.8	1.5	3.1	2.3	6.4
9	T	0.3	1.0	1.2	1.1	T	0.3	0.5	1.0	0.3	3.5	3.3
10	A	0.1	1.5	0.7	0.2	A	0.2	0.2	0.8	0.1	1.0	2.7
11		0.5	0.6	0.3	0.5		0.1	0.0	0.9	0.1	0.8	0.8
12		0.1	0.7	0.4	0.3		0.0	0.2	0.6	0.0	0.9	0.8
13		0.1	0.3	0.7	0.2		0.1	0.0	0.9	0.0	0.5	0.6
>13		0.1	0.2	0.1	0.2		0.1	0.0	0.2	0.0	0.9	0.3

LAKE TROUT/BACKCROSS

- The total quota available on commercial fishing licences was 5,737 kg. An additional 2,985 kg of quota was held by the Crown. A temporary allowance of 4,365 kg was also available to the commercial fishery. An additional temporary allowance of 163 kg was held by the Crown.
- Harvest increased 9% to 9,557 kg, 167% of the available quota and 95% of the available quota and allowance. Harvest was 110% of the total of available quota plus Crown held quota (Figure 6-1.20). Most of the harvest occurred in areas NC02 and NC03 (Figure 6-1.21).
- CPUE is given by assessment area in Figure 6-1.22.

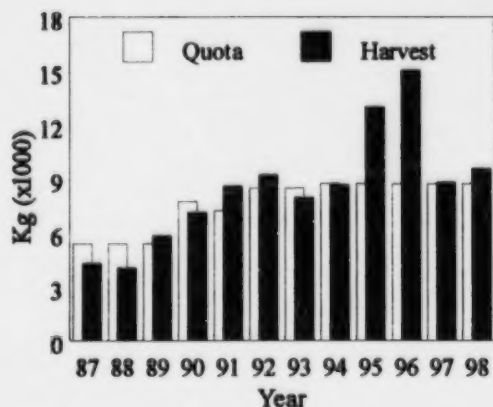


Figure 6-1.20. Lake trout/backcross quota and harvest (kg) for management area 6-1.

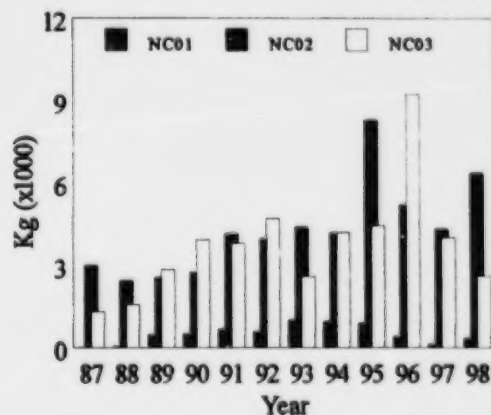


Figure 6-1.21. Lake trout/backcross harvest (kg) by subarea for management area 6-1.

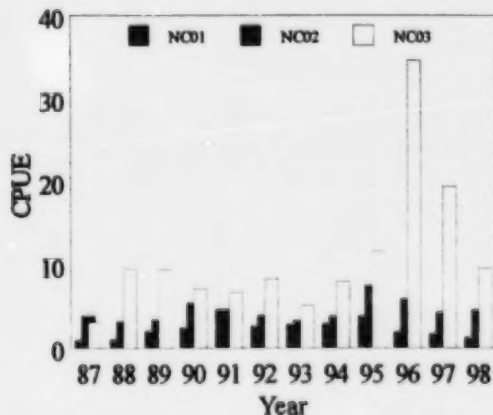


Figure 6-1.22. Lake trout/backcross gill net CPUE (kg/km) for management area 6-1.

NORTHERN PIKE

- The final quota available on commercial fishing licences was 8,692 kg (Table 6-1.1). An additional 7,798 kg was held by the Crown. The total of these two amounts was 16,490 kg.
- Harvest increased 117% to 819 kg, 9% of the available quota. Harvest was 5% of the total quota, including Crown held quota (Figure 6-1.23).
- No prediction concerning future abundance, due to limited information.

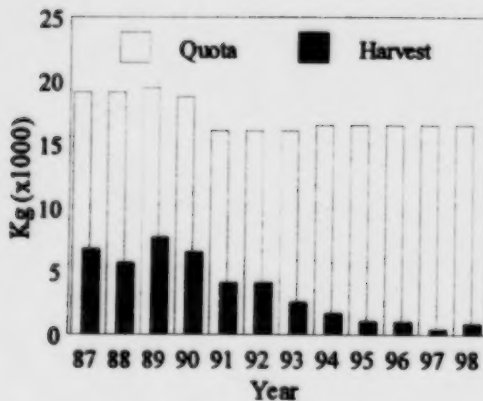


Figure 6-1.23. Northern pike quota and harvest (kg) for management area 6-1.

MANAGEMENT AREA 6-3

GENERAL

- Quota issued on commercial fishing licences was 5,776 kg (Table 6-3.1), including a lake trout allowance of 112 kg.
- Harvest of all fish species under quota control was 555 kg. Estimated value of these fish was \$1,020.
- Harvest and estimated value of all fish sold was 572 kg and \$1,035, respectively.



Table 6-3.1. Quota, harvest, percent quota taken, catch, and estimated value by species for management area 6-3 in 1998.

Species	Quota (kg)	Harvest (kg)	% Quota Taken	Catch (kg)	Value (\$)
Channel Catfish	227	0	0.0	0	0
Chub	0	0	0.0	0	0
Lake Sturgeon	0	1	—	1	6
Lake Trout	772	26	3.4	26	39
Lake Whitefish	3,818	526	13.8	526	970
Northern Pike	336	0	0.0	0	0
Walleye	0	2	—	2	5
Yellow Perch	623	0	0.0	0	0
Lake Herring		8		8	5
Round Whitefish		9		9	10
Total	5,776	572		572	1,035

LAKE WHITEFISH

- The quota issued was 3,818 kg.
- There was a harvest of 526 kg in 1998, 14% of the quota (Figure 6-3.1).
- Effort was not available at time of printing (Figure 6-3.2).
- Fluctuations in reported harvest and effort preclude using CPUE as a reliable indicator of abundance.
- No prediction of future abundance is possible with available information.

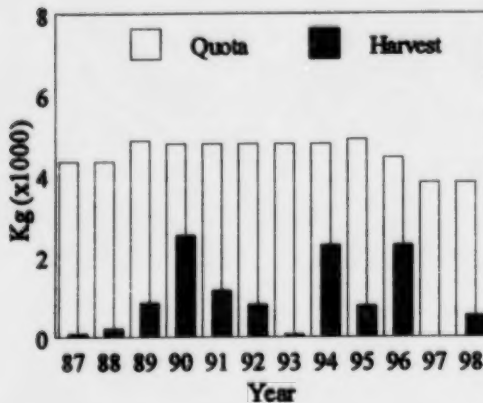


Figure 6-3.1. Lake whitefish quota and harvest (kg) for management area 6-3.

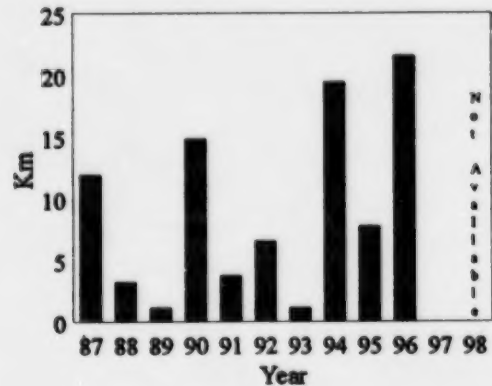


Figure 6-3.2. Lake whitefish gill net effort (km) for management area 6-3.

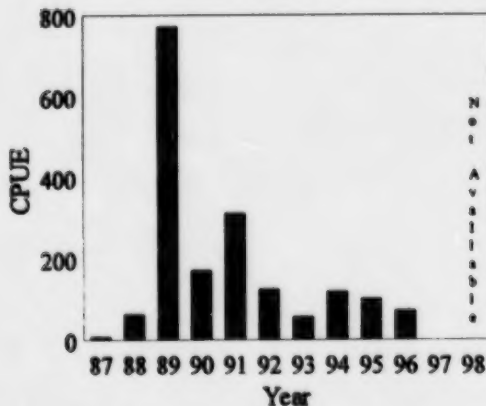


Figure 6-3.3. Lake whitefish gill net CPUE (kg/km) for management area 6-3.

YELLOW PERCH

- Quota issued was 623 kg.
- No harvest or effort was reported in 1998 (Figures 6-3.4,6-3.5).
- Yellow perch abundance is greatly reduced relative to past years.

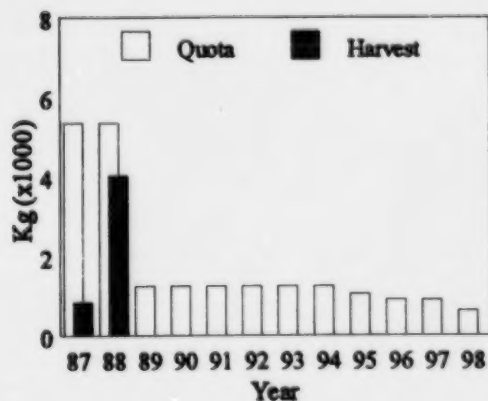


Figure 6-3.4. Yellow perch quota and harvest (kg) for management area 6-3.

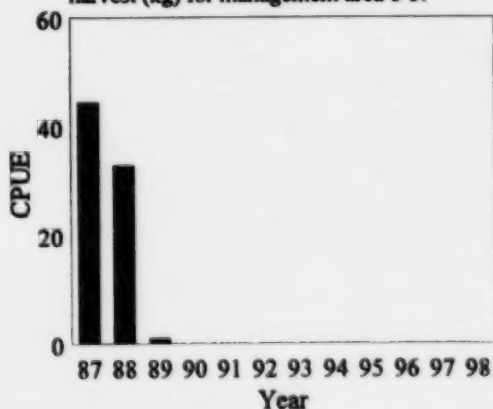


Figure 6-3.6. Yellow perch gill net CPUE (kg/km) for management area 6-3 (no reported effort 90-98).

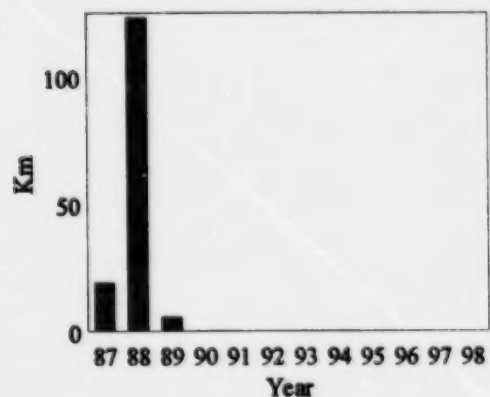


Figure 6-3.5. Yellow perch gill net effort (km) for management area 6-3.

LAKE TROUT/BACKCROSS

- Total quota issued was 660 kg (Figure 6-3.7). A temporary allowance of 112 kg was also available to the commercial fishery. The total allowable harvest was 772 kg.
- There was an estimated harvest of 26 kg in 1998, but no effort was reported.

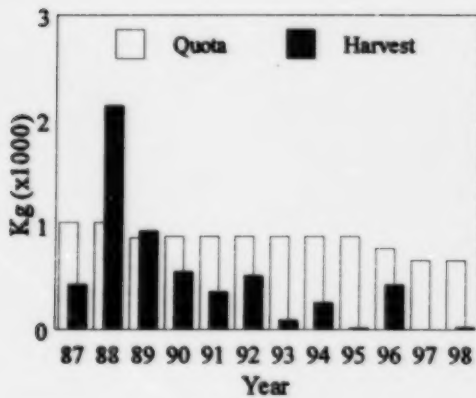


Figure 6-3.7. Lake trout/backcross quota and harvest (kg) for management area 6-3.

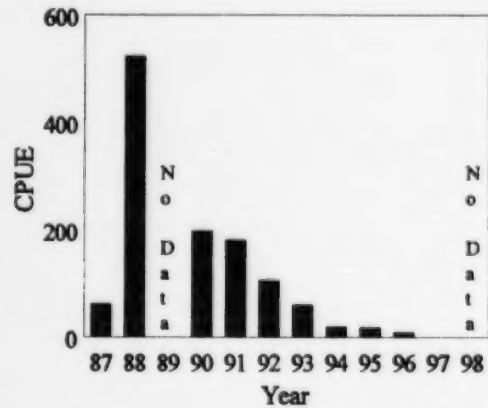


Figure 6-3.8. Lake trout/backcross gill net CPUE (kg/km) for management area 6-3.

ACKNOWLEDGEMENTS

We thank the many commercial fisheries that provided commercial catch sampling contractors unhindered access to their vessels and catches for the collection of biological data. Without their support, our assessment would be incomplete. We also thank those fishers who have entered into partnership programs aimed at developing recruitment forecasts or have actively sampled catches and recorded information to augment our data collection (see Appendix 4).

It is important to acknowledge the valuable contribution of our commercial catch sampling staff, Scott Austin, Terry Walmsely, and Mark Witty to the completion of this document. Their efforts are greatly appreciated. Finally, we wish to recognize the many contributions of the Lake Huron Management Unit and Lake Huron Research Unit staff. Jim Hastie coordinated field operations and administered the commercial catch sampling contracts. Ed deLaplante, Wally Illman, Tim Riordan, John Brookham, and others carried out index fishing operations. Wally Illman and John Brookham made thousands of fish age determinations. Harry Taylor managed and summarized the commercial fish harvest and catch sample data. Sylvia Mannonen ably completed the onerous task of data entry and word processing to finish this report. To all, thank you.

APPENDIX 1

Table A1.1. Lake whitefish harvest, quota, effort and CPUE for management area 4-1.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	44208	N/A	N/A	339.9	111.9
1983	64974	N/A	N/A	485.1	113.8
1984	45918	65217	70.4	661.2	61.6
1985	39934	65217	61.2	694.6	57.5
1986	47259	65217	72.5	678.3	69.7
1987	59484	75172	79.1	664.1	92.8
1988	48566	71932	67.5	638.4	76.1
1989	31470	71932	43.7	485.3	64.8
1990	28356	71932	39.4	388.6	73.0
1991	13342	71932	18.5	251.8	53.0
1992	28999	64750	44.8	356.4	81.4
1993	38558	64739	59.6	511.2	75.4
1994	63786	64739	98.5	565.0	112.9
1995	71226	71213	100.0	488.4	145.8
1996	78534	78355	99.1	453.5	173.2
1997	87265	86168	101.3	625.0	139.6
1998	93324	94785	98.5	697.6	133.8

Table A1.2. Chub harvest, quota, effort and CPUE for management area 4-1.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	318	N/A	N/A	0.0	0.0
1983	2722	N/A	N/A	35.4	49.0
1984	10106	15713	64.3	172.8	48.6
1985	15756	18070	87.2	232.2	67.9
1986	17115	18643	91.8	296.9	57.6
1987	13535	18685	72.4	204.5	65.0
1988	16883	20549	82.2	217.0	77.8
1989	20414	20549	99.3	263.8	77.4
1990	21814	22833	95.5	269.6	80.9
1991	3292	22833	14.4	37.2	88.5
1992	9262	22837	40.6	125.7	73.7
1993	13103	22833	57.4	202.2	64.8
1994	19342	22833	84.7	284.0	68.1
1995	1917	22833	8.4	43.0	44.6
1996	6677	22833	31.2	111.1	60.1
1997	10659	22833	46.8	154.9	68.8
1998	5543	22833	24.3	75.4	73.5

Table A1.3. Lake whitefish harvest, quota, effort and CPUE for management area 4-2.

Year	Harvest (kg)			Quota (kg)	Percent Taken	Effort		CPUE	
	Gill	Trap	Total			Gill (km)	Trap (# of lifts)	Gill (kg/km)	Trap (kg/net)
1982	92296	21803	114099	N/A	N/A	1404.8	247	65.7	88.3
1983	75645	21047	96692	N/A	N/A	1003.7	231	75.4	91.1
1984	94753	21474	116227	132910	87.4	1521.4	219	62.3	98.1
1985	108579	20433	129012	132910	97.1	1162.8	251	93.4	81.4
1986	115121	21983	137104	132910	103.2	1426.0	249	80.7	88.3
1987	91570	25701	117271	153190	76.6	1123.8	233	81.5	110.3
1988	95881	48046	143927	153161	94.0	974.9	268	98.3	179.3
1989	70375	24064	94439	153161	61.7	937.5	228	75.1	105.5
1990	42698	18480	61178	153161	39.9	678.1	203	63.0	91.0
1991	63597	24704	88301	153161	57.7	976.9	202	65.1	122.3
1992	57999	19339	77338	153187	50.5	942.0	177	61.6	109.3
1993	33987	17554	51541	153161	33.7	676.7	141	50.2	124.5
1994	109580	8603	118183	153161	77.2	1203.4	76	91.0	113.2
1995	130930	36504	167434	168477	99.4	893.3	138	146.6	264.5
1996	136899	48968	185867	185325	99.8	857.3	113	159.7	433.3
1997	148895	58890	207785	203858	101.9	837.3	146	177.8	403.4
1998	151554	70807	222361	224243	99.2	901.1	187	168.2	378.6

Table A1.4. Chub harvest, quota, effort and CPUE for management area 4-2.

Year	Harvest	Quota	Percent	Effort	CPUE (kg/km)	
	(kg)	(kg)	Taken	(km)	Harvest	Discards
1982	32785	N/A	N/A	345.0	83.8	
1983	33180	N/A	N/A	437.0	66.1	
1984	42418	35584	119.2	537.0	77.8	
1985	35619	40922	87.0	507.8	69.6	
1986	35433	35584	99.6	458.5	76.1	2.8
1987	31237	35665	87.6	466.6	59.2	1.1
1988	38988	39224	99.4	544.0	71.7	0.6
1989	39142	39224	99.8	431.1	90.8	1.5
1990	43129	43582	99.0	317.1	136.0	5.2
1991	40771	43582	93.6	426.0	95.7	9.8
1992	40845	43589	93.7	521.1	78.4	10.5
1993	39616	43582	90.9	668.6	59.3	10.2
1994	43463	43582	99.7	642.0	67.7	9.7
1995	23803	43582	54.6	434.5	54.8	11.7
1996	22428	43582	50.9	352.7	63.6	25.6
1997	43126	43582	99.0	771.1	55.9	11.2
1998	38584	43582	88.5	531.7	72.6	49.8

Table A1.5. Lake whitefish harvest, quota, effort and CPUE for management area 4-3.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	74980	N/A	N/A	612.7	56.5
1983	45128	N/A	N/A	366.0	112.5
1984	36678	79520	46.1	355.3	102.3
1985	51611	79520	64.9	592.9	97.8
1986	38839	79518	48.8	439.4	88.8
1987	41467	114478	36.2	411.8	103.7
1988	69197	99768	69.4	805.1	85.9
1989	64713	98194	65.9	831.7	77.8
1990	69483	88263	78.7	953.0	71.4
1991	105934	108377	97.7	1099.0	96.4
1992	103094	119234	86.5	988.7	104.3
1993	95073	119214	79.7	1058.0	89.9
1994	123280	119214	103.4	1053.8	117.0
1995	122467	119214	102.7	902.8	135.7
1996	128391	131137	97.9	955.5	134.4
1997	130850	120611	108.5	956.6	136.8
1998	116632	126190	92.4	792.6	147.2

Table A1.6. Chub harvest, quota, effort and CPUE for management area 4-3.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)	
					Harvest	Discards
1982	6347	N/A	N/A	101.7	45.3	
1983	3482	N/A	N/A	32.9	65.7	
1984	30318	41640	72.8	274.8	109.4	
1985	39184	41640	94.1	478.9	83.1	
1986	34155	57603	59.3	536.8	64.0	3.8
1987	58471	59222	98.7	862.2	71.6	2.1
1988	47122	59371	79.4	662.5	71.1	3.4
1989	52317	59371	88.1	586.9	89.1	4.1
1990	45152	65751	68.7	429.0	105.2	14.6
1991	33334	65751	50.7	421.8	79.0	10.6
1992	26429	65763	40.2	292.7	90.3	18.7
1993	48127	65751	73.2	586.6	82.0	9.6
1994	63512	65751	96.6	750.4	84.6	15.4
1995	46390	65751	70.6	641.9	72.3	27.7
1996	40048	65751	60.9	714.5	56.1	17.7
1997	46865	59177	79.2	508.1	92.2	35.1
1998	36747	36727	100.1	310.9	118.2	95.9

Table A1.7. Lake whitefish harvest, quota, effort and CPUE for management area 4-4.

Year	Harvest (kg)				Quota (kg)	Percent Taken	Gill Effort (km)				CPUE (kg/km)		
	LH05	LH06	LH07	Total			LH05	LH06	LH07	Total	LH05	LH06	LH07
1982	157270	592		157862	N/A	N/A	1572.9	4.6		1577.5	98.3	67.4	
1983	199122	588		199710	N/A	N/A	1427.2	8.4		1435.6	137.3	70.0	
1984	256189	944		257133	273339	94.1	1349.7	13.0		1362.7	189.8	72.3	
1985	312497	508		313005	273339	114.5	1053.5	0.9		1054.4	287.0	356.7	
1986	241737	2		241739	284321	85.0	992.0	0.0		992.0	236.3	--	
1987	343893	0		343893	327557	105.0	1456.4	0.0		1456.4	236.1	--	
1988	261822	26758		288580	327495	88.1	1029.0	165.7		1194.7	254.4	161.5	
1989	283154	36672		319826	327495	97.7	1210.0	145.7		1355.7	233.8	251.7	
1990	332223	31589		363812	360244	101.0	1151.9	106.1		1258.0	288.4	297.7	
1991	381527	42643		424170	432293	98.1	1061.6	136.0		1197.6	359.4	313.5	
1992	402214	28053		430267	435968	98.7	1089.4	59.1		1148.5	369.2	474.7	
1993	387988	68308		456296	458208	99.6	1125.8	170.2		1296.0	344.9	401.3	
1994	206012	148874		354886	359923	98.6	533.9	300.8		834.7	385.9	494.9	
1995	47314	110712		158026	162188	97.4	194.7	323.1		517.8	243.0	342.7	
1996	na	816	1814	2630	217457	1.2	0.0	6.9	3.7	10.6	na	118.3	490.3
1997	na	2799	0	na	385845	na	na	7.8	0.0	na	na	358.8	--
1998	na	na	na	na	385845	na	na	na	na	na	na	na	na

Table A1.8. Chub harvest, quota, effort and CPUE for management area 4-4.

Year	Harvest (kg)				Quota (kg)	% Taken	Gill Effort (km)				CPUE (kg/km)			
	LH05	LH06	LH07	Total			LH05	LH06	LH07	Total	LH05	LH06	LH07	4-4
											Harvest	Harvest	Harvest	Discards
1982	70351	48684	0	119035	N/A	N/A	1018.5	757.0	0.0	1775.5	68.5	64.3	---	
1983	68080	58171	59708	185959	N/A	N/A	631.1	667.1	549.2	1847.4	93.1	87.2	108.7	
1984	73681	100951	64455	239087	275778	86.7	761.4	918.1	494.3	2173.8	86.2	109.8	130.4	
1985	23809	60298	58663	142770	317146	45.0	241.0	696.1	543.1	1480.2	98.8	86.6	108.0	
1986	39405	25966	56513	121884	277781	43.9	521.7	546.1	530.1	1597.9	75.5	47.5	106.6	1.5
1987	66119	15011	2662	83792	276398	30.3	763.9	268.8	27.6	1060.3	86.5	55.8	96.4	4.7
1988	90161	62350	51529	204040	234896	86.9	810.1	734.9	658.5	2203.5	111.3	84.8	78.3	22.1
1989	94352	45127	0	139479	234896	59.4	681.6	337.4	0.0	1019.0	138.4	133.7	---	7.2
1990	79294	55703	51229	186226	257211	72.4	480.5	308.2	150.0	938.6	165.0	180.8	341.6	17.8
1991	64627	76960	51894	193481	258385	74.9	423.2	531.5	364.0	1318.7	152.7	144.8	142.6	30.5
1992	51294	86289	18947	156530	258530	60.5	328.3	563.1	84.1	988.8	156.2	153.2	225.3	47.9
1993	69832	101143	4445	175420	258173	67.9	393.1	628.6	21.0	1042.7	177.7	160.9	211.7	31.4
1994	45503	84299	8512	138014	185347	74.5	481.8	385.1	35.7	902.6	94.4	218.9	230.0	29.4
1995	36908	52409	7253	96570	199406	48.4	291.8	508.9	45.7	846.4	126.5	103.0	158.7	28.5
1996	1427	29515	0	30942	176254	17.6	11.0	237.5	0.0	248.5	129.7	124.3	---	17.1
1997	na	12911	0	na	258173	na	na	70.9	0.0	na	na	182.1	---	---
1998	na	na	na	na	258173	na	na	na	na	na	na	na	na	na

Table A1.9. Yellow perch harvest, quota, effort and CPUE for management area 4-4.

Year	Harvest (kg)			Quota (kg)	Percent Taken	Gill Effort (km)			CPUE (kg/km)	
	LH05	LH06	Total			LH05	LH06	Total	LH05	LH06
1982	5971	630	6601	N/A	N/A	138.1	32.7	170.8	39.2	19.3
1983	34380	7255	41635	N/A	N/A	469.7	112.9	582.6	57.9	65.3
1984	4868	3517	8385	10161	82.5	123.3	93.3	216.6	36.9	39.2
1985	5047	1723	6770	10161	66.6	81.1	15.9	97.0	55.1	108.4
1986	3749	4474	8223	10161	80.9	66.3	56.1	122.4	55.9	79.8
1987	13619	1302	14921	20362	73.3	170.5	32.1	202.6	74.6	40.6
1988	3372	2888	6260	20362	33.4	141.1	79.2	220.3	22.5	36.5
1989	6888	3854	10742	18327	58.6	219.2	39.6	258.8	27.8	97.3
1990	10567	1691	12258	18327	66.9	277.2	16.3	293.5	38.1	103.9
1991	13004	420	13424	18253	73.5	346.7	21.0	367.7	36.4	19.6
1992	5818	850	6668	18255	36.5	158.0	42.5	200.5	36.8	20.0
1993	1478	691	2169	16492	13.2	58.8	31.7	90.5	25.1	21.8
1994	1155	1222	2377	7877	30.2	54.0	11.2	65.2	21.4	109.1
1995	0	0	0	6301	0.0	0.0	1.5	1.5	--	--
1996	0	331	331	9387	3.5	0.0	4.6	4.6	--	72.0
1997	0	0	0	10687	0.0	0.0	0.0	0.0	--	--
1998	0	0	0	9164	0.0	na	na	na	--	--

Table A1.10. Lake trout/backcross harvest and quota for management area 4-4.

Year	Harvest (kg)				Quota (kg)	Percent Taken
	LH05	LH06	LH07	Total		
1982	192	205		397	N/A	N/A
1983	684	589		1273	N/A	N/A
1984	1287	22		1309	950	137.8
1985	262	106		368	950	38.7
1986	109	0		109	1583	6.9
1987	107	0		107	1593	6.7
1988	191	0		191	1593	12.0
1989	899	2		901	1582	57.0
1990	1592	12		1625	1582	102.7
1991	1882	124		2006	1582	126.8
1992	1485	79		1564	1999	78.2
1993	2394	1586		3980	2006	198.4
1994	3205	4564		7769	2006	387.3
1995	1061	9484		10545	2006	525.7
1996	6	151	227	384	1625	23.6
1997	15093	113	0	15206	8093	187.9
1998	na	na	na	8478	2006	422.6

Table A1.11. Lake whitefish harvest, quota, effort and CPUE for management area 4-5.

Year	Harvest (kg)			Quota (kg)	Percent Taken	Effort		CPUE	
	Gill	Trap	Total			Gill (km)	Trap (# of nets)	Gill (kg/km)	Trap (kg/net)
1982	341880	46566	388446	N/A	N/A	2717.9	1248	125.8	37.3
1983	701812	90874	792686	N/A	N/A	4808.3	985	146.0	92.3
1984	473853	40795	514648	575068	89.4	4260.5	454	111.2	89.9
1985	537770	60800	598570	575068	104.1	2655.3	464	202.5	131.0
1986	514792	56593	571385	567358	100.7	2454.3	800	209.7	70.7
1987	531662	33265	564427	567806	99.4	2774.4	1010	191.6	32.9
1988	538241	24352	562593	567722	99.1	3060.7	626	175.9	38.9
1989	516942	36427	553369	578683	95.6	2310.5	873	223.7	41.7
1990	586046	18749	604795	625697	96.7	2055.3	148	285.1	126.7
1991	687471	35485	722956	753515	95.9	2850.5	772	241.2	46.0
1992	772641	32473	805114	790824	101.8	2646.2	904	292.0	35.9
1993	739150	132183	871333	906882	96.1	2476.4	983	298.5	134.5
1994	638963	108566	747529	906885	82.2	1883.9	195	339.2	556.7
1995	799910	72738	872648	906885	96.2	2634.9	111	303.6	655.3
1996	893894	88644	982538	997575	98.5	2467.0	93	362.3	953.2
1997	970135	94449	1064584	1097331	97.9	2554.4	123	379.8	767.9
1998	1094894	48299	1143193	1207067	94.7	2932.1	65	373.4	743.1

Table A1.12. Chub harvest, quota, effort and CPUE for management area 4-5.

Year	Harvest	Quota	Percent	Effort	CPUE (kg/km)	
	(kg)	(kg)	Taken	(km)	Harvest	Discards
1982	63887	N/A	N/A	1099.5	58.1	
1983	54482	N/A	N/A	721.2	75.5	
1984	161434	174608	92.5	2062.4	78.3	
1985	161753	200799	80.6	3833.0	42.2	
1986	97368	174637	55.8	1015.3	95.9	12.0
1987	47686	174855	27.3	830.9	57.4	6.2
1988	96898	158856	61.0	1385.5	69.9	4.6
1989	18709	169291	11.1	168.9	110.8	48.0
1990	31721	151161	21.0	188.6	168.2	93.4
1991	20110	153251	13.1	170.2	118.2	15.6
1992	30964	154758	20.0	238.1	130.0	83.7
1993	36327	151722	23.9	193.3	187.9	30.4
1994	27408	151722	18.1	256.8	106.7	20.8
1995	28040	151722	18.5	155.4	180.4	32.3
1996	29716	151722	19.6	143.6	206.9	35.4
1997	58792	151722	39.4	414.1	142.0	43.0
1998	1758	136549	1.3	21.9	80.4	95.2

Table A1.13. Yellow perch harvest, quota, effort and CPUE for management area 4-5.

Year	Harvest (kg)			Quota (kg)	Percent Taken	Effort		CPUE	
	Gill	Trap	Total			Gill (km)	Trap (# of nets)	Gill (kg/km)	Trap (kg/net)
1982	127744	5636	133380	N/A	N/A	4833.2	2361	26.4	2.4
1983	99115	10789	109904	N/A	N/A	2880.9	2729	34.4	4.0
1984	198785	7566	206351	249353	82.8	3832.0	2139	51.9	3.5
1985	214888	13264	228152	249353	91.5	4976.8	2162	43.2	6.1
1986	233977	10529	244506	249353	98.1	3850.8	1785	60.8	5.9
1987	189704	11127	200831	313275	64.1	3239.8	2388	58.6	4.7
1988	154136	3814	157950	272522	58.0	2930.9	1505	52.6	2.5
1989	231414	8148	239562	279834	85.6	3509.1	1827	65.9	4.5
1990	180063	4239	184302	264894	69.6	3026.0	2294	59.5	1.8
1991	209190	13277	222467	281996	78.9	4306.5	1998	48.6	6.6
1992	108740	5718	114458	289540	39.5	3079.5	1776	35.3	3.2
1993	71598	2653	74251	289027	25.7	1616.9	1695	44.3	1.6
1994	110643	1832	110643	289027	38.3	2456.5	67	44.3	27.3
1995	50345	1076	51421	231233	22.2	1526.2	90	33.0	12.0
1996	60688	2454	63142	208113	30.3	1194.0	196	50.8	12.5
1997	75624	2444	78068	187307	43.1	1690.5	147	44.7	16.6
1998	106350	10901	117251	144794	81.0	2112.1	360	50.4	30.3

Table A1.14. Walleye harvest, quota, effort and CPUE for management area 4-5.

Year	Harvest (kg)			Quota (kg)	Percent Taken	Effort		CPUE	
	Gill	Trap	Total			Gill (km)	Trap (# of nets)	Gill (kg/km)	Trap (kg/net)
1982	26418	87995	114413	N/A	N/A	1502.0	2253	17.6	39.1
1983	27095	93930	121025	N/A	N/A	1195.9	2905	22.7	32.3
1984	21757	107277	129034	125355	102.9	1170.8	3300	18.6	32.5
1985	17154	102446	119600	125355	95.4	512.1	2163	33.5	47.4
1986	10320	112503	122823	125355	98.0	782.6	2330	13.2	48.3
1987	13607	123201	136808	137414	99.6	901.6	2453	15.1	50.2
1988	12707	126152	138859	137891	100.7	806.1	1794	15.8	70.3
1989	8625	102383	111008	137910	80.5	566.6	2032	15.2	50.4
1990	9447	119968	129415	138504	93.4	42.0	2017	224.9	59.5
1991	10854	112162	123016	125043	98.4	802.7	2346	13.5	47.8
1992	10957	101769	110223	124687	90.4	479.5	2158	22.9	47.2
1993	47496	87358	134854	137433	98.1	428.8	2015	110.8	43.4
1994	45349	85641	130990	137433	95.3	378.1	1428	119.9	60.0
1995	40597	48907	89504	137433	65.1	665.6	1573	61.0	31.1
1996	16899	44079	60978	123697	49.3	177.0	1340	95.5	32.9
1997	8423	81701	90124	123697	76.6	70.9	1917	118.9	42.6
1998	9656	72961	82617	123697	66.8	86.5	1690	111.6	43.2

Table A1.15. Lake trout/backcross harvest and quota for management area 4-5.

Year	Harvest (kg)			Quota (kg)	Percent Taken
	Gill	Trap	Total		
1982	14837	3598	18435	N/A	N/A
1983	49371	5127	54498	N/A	N/A
1984	21431	5686	27117	37234	72.8
1985	19023	1212	20235	37209	54.4
1986	28718	1006	29724	37211	79.9
1987	26766	3063	29829	37240	80.1
1988	16701	1255	17956	37240	48.2
1989	14012	1122	15134	34062	44.4
1990	10523	1462	11985	36908	32.5
1991	14172	564	14736	37096	39.7
1992	20647	708	21355	36681	58.2
1993	9699	655	10354	36674	28.2
1994	9751	642	10393	36674	28.3
1995	40719	713	41432	36674	113.0
1996	49075	1624	50699	36674	138.2
1997	43047	1784	44831	36674	122.2
1998	31260	3537	34797	36674	94.9

Table A1.16. Lake whitefish harvest, quota, effort and CPUE for management area 4-7.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	19962	N/A	N/A	243.5	80.6
1983	34788	N/A	N/A	410.6	78.4
1984	20243	76401	26.5	240.7	85.4
1985	48705	76401	63.7	259.1	156.1
1986	49133	76401	64.3	274.0	175.4
1987	76638	74038	103.5	727.9	105.3
1988	36614	68816	53.2	219.0	167.2
1989	59893	67909	88.2	312.4	191.7
1990	71889	73518	97.8	312.0	230.4
1991	86994	95084	91.5	392.7	221.5
1992	81909	90399	90.6	402.8	203.3
1993	91314	95037	96.1	509.0	179.4
1994	58237	85514	68.1	441.1	132.0
1995	66673	85966	77.6	706.7	94.3
1996	2193	40772	5.4	12.5	175.4
1997	na	76980	na	na	na
1998	na	76979	na	na	na

Table A1.17. Chub harvest, quota, effort and CPUE for management area 4-7.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)	
					Harvest	Discards
1982	7543	N/A	N/A	152.5	49.4	
1983	5457	N/A	N/A	116.8	45.4	
1984	42954	38946	110.3	556.2	78.3	
1985	33275	44788	74.3	435.4	67.5	
1986	32145	54092	59.4	394.1	81.6	9.2
1987	39352	53967	72.9	591.0	66.5	5.8
1988	41537	53764	77.3	480.9	86.4	6.4
1989	49596	53764	92.2	512.5	96.8	10.7
1990	23691	55463	42.7	269.6	87.9	N/A
1991	26283	59141	44.4	288.4	91.1	56.4
1992	29416	59151	49.7	251.8	116.8	30.7
1993	45711	59141	77.3	470.7	97.1	32.7
1994	44169	52791	83.7	488.3	90.5	18.4
1995	53739	56873	94.5	855.1	62.8	16.6
1996	11099	39543	28.1	169.6	65.4	8.6
1997	na	53227	na	na	na	na
1998	na	53227	na	na	na	na

Table A1.18. Lake whitefish harvest, quota, effort and CPUE for management area 5-1.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	7679	N/A	N/A	183.5	11.4
1983	6517	N/A	N/A	462.5	9.9
1984	9593	49037	19.6	193.7	44.8
1985	17974	49037	36.7	363.0	49.7
1986	28899	49037	58.9	448.2	63.8
1987	11944	41836	28.5	393.8	29.8
1988	8717	42114	20.7	594.0	14.4
1989	7370	35509	20.8	121.9	60.5
1990	7461	33722	22.1	105.1	71.0
1991	19056	28741	66.3	357.0	53.4
1992	26237	35526	73.9	278.1	94.3
1993	31025	39075	79.4	206.7	150.1
1994	44521	46891	94.9	581.4	76.6
1995	43442	47285	91.9	515.0	84.4
1996	58069	52014	111.6	438.4	132.5
1997	43886	54316	80.8	406.8	107.9
1998	53866	59747	90.2	675.7	79.7

Table A1.19. Chub harvest, quota, effort and CPUE for management area 5-1.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	3555	N/A	N/A	121.6	28.3
1983	1464	N/A	N/A	60.9	21.1
1984	4529	18004	25.2	139.8	31.6
1985	4697	20704	22.7	48.1	98.3
1986	12490	17553	71.2	285.8	44.0
1987	9290	17468	53.2	243.2	37.7
1988	6166	17599	35.0	226.1	27.3
1989	3799	17052	22.3	14.8	256.7
1990	752	17052	4.4	7.3	102.8
1991	9094	13654	66.6	144.4	63.0
1992	2620	17056	15.4	26.5	98.9
1993	4880	17052	28.6	42.5	114.7
1994	5704	17052	33.4	165.9	34.4
1995	8756	17052	51.4	163.1	53.7
1996	2940	17052	17.2	89.8	32.7
1997	6452	17052	41.2	160.9	40.1
1998	8032	17052	47.1	163.1	49.2

Table A1.20. Yellow perch harvest, quota, effort and CPUE for management area 5-1.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	6727	N/A	N/A	355.5	18.2
1983	16126	N/A	N/A	774.2	20.5
1984	14714	28783	51.1	557.0	28.4
1985	11601	28783	40.3	227.9	50.3
1986	8510	30824	27.6	358.7	23.4
1987	6789	29788	22.8	330.6	20.4
1988	6994	29869	23.4	571.7	12.2
1989	1907	25801	7.4	104.4	18.3
1990	1305	24983	5.2	36.1	36.1
1991	1427	18938	7.5	63.1	22.6
1992	1117	25895	4.3	51.6	21.7
1993	104	25592	0.4	2.3	45.6
1994	0	23301	0.0	0.0	--
1995	0	18658	0.0	0.0	--
1996	0	16805	0.0	0.0	--
1997	0	14603	0.0	0.0	--
1998	0	11899	0.0	0.0	--

Table A1.21. Lake trout/backcross harvest and quota for management area 5-1.

Year	Harvest (kg)	Quota (kg)	Percent Taken
1982	900	N/A	N/A
1983	271	N/A	N/A
1984	822	1588	51.8
1985	2286	1588	144.0
1986	2591	2672	97.0
1987	1187	2562	46.3
1988	1387	2562	54.1
1989	845	2596	32.6
1990	1180	2482	47.5
1991	1187	2596	45.7
1992	1585	2596	61.0
1993	2468	2596	95.1
1994	3269	2596	125.7
1995	3598	2596	138.6
1996	5134	2596	197.8
1997	3874	2482	156.1
1998	5794	2482	233.4

Table A1.22. Lake whitefish harvest, quota, effort and CPUE for management area 5-2.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	6732	N/A	N/A	92.7	71.4
1983	6360	N/A	N/A	157.7	40.2
1984	9488	22612	42.0	154.4	61.4
1985	7239	22612	32.0	201.8	34.7
1986	2532	21354	11.9	69.5	37.5
1987	2507	21398	11.7	74.7	31.4
1988	2108	21398	9.9	21.9	94.0
1989	1683	19258	8.7	33.2	51.3
1990	2553	18901	13.5	31.0	82.2
1991	12278	31550	38.9	90.0	136.4
1992	15202	24649	61.7	111.5	136.3
1993	12074	33136	36.4	126.5	95.4
1994	21728	33137	65.5	127.5	170.3
1995	20408	33137	72.6	117.4	173.8
1996	28624	35453	80.7	198.1	144.5
1997	30861	38003	81.9	197.7	156.1
1998	45166	41804	108.0	324.8	139.1

Table A1.23. Chub harvest, quota, effort and CPUE for management area 5-2.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	1	N/A	N/A	2.7	0.0
1983	0	N/A	N/A	0.0	0.0
1984	8583	17270	49.7	59.5	141.9
1985	11838	20120	58.8	90.8	101.8
1986	10754	17270	62.3	159.9	67.5
1987	8139	19841	41.0	123.7	65.8
1988	7260	20163	36.0	124.4	58.4
1989	109	20163	0.5	2.7	40.4
1990	92	20001	0.5	1.5	62.9
1991	3095	20000	15.5	37.7	82.1
1992	11007	27904	40.0	117.8	93.4
1993	11246	27163	41.4	118.4	95.0
1994	16066	27163	59.1	116.3	138.1
1995	12335	27163	45.4	128.8	95.8
1996	17452	29163	59.8	188.3	92.7
1997	17369	29163	60.4	179.6	96.7
1998	18793	29163	64.4	178.7	105.2

Table A1.24. Yellow perch harvest, quota, effort and CPUE for management area 5-2.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	22	N/A	N/A	2.7	8.1
1983	212	N/A	N/A	0.0	0.0
1984	179	907	19.7	12.3	14.5
1985	477	1043	45.7	14.2	31.1
1986	112	1043	10.7	15.0	5.1
1987	845	1132	74.6	38.9	20.3
1988	484	1244	38.9	7.1	68.2
1989	1	1244	0.1	0.1	0.1
1990	10	1244	0.8	0.5	18.2
1991	79	1730	4.6	3.3	23.9
1992	14	1153	1.2	0.6	23.3
1993	0	1244	0.0	0.0	--
1994	0	1151	0.0	0.0	--
1995	11	988	1.1	0.2	55.0
1996	0	922	0.0	0.0	--
1997	0	864	1.2	0.0	--
1998	0	788	0.0	0.0	--

Table A1.25. Walleye harvest, quota and CPUE for management area 5-2.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	5837	N/A	N/A	133.9	43.6
1983	6671	N/A	N/A	237.4	28.1
1984	3443	5002	68.8	138.8	24.8
1985	1878	5002	37.5	105.5	17.8
1986	1981	4551	43.5	78.0	25.4
1987	2014	4561	44.2	92.4	21.8
1988	2144	4591	46.7	42.1	50.9
1989	1940	4591	42.3	91.1	21.3
1990	1133	4568	24.8	24.3	46.6
1991	2606	6192	42.1	73.2	35.6
1992	3739	6466	60.9	56.9	65.7
1993	1722	4566	37.7	38.0	45.3
1994	3131	4566	68.6	62.6	50.0
1995	3222	4566	70.6	72.2	44.6
1996	3243	4566	71.0	80.1	40.5
1997	1982	4566	54.5	48.0	41.3
1998	3156	4566	69.1	77.5	40.7

Table A1.26. Lake whitefish harvest, quota, effort and CPUE for management area 5-3.

Year	Harvest (kg)				Quota (kg)	% Taken	Gill Effort (km)			CPUE (kg/km)	
	GB03	GB04	GB06	Total			GB03	GB06	Total	GB03	GB06
1982	6627	109	1952	8688	N/A	N/A	70.6	124.7	195.3	92.1	14.9
1983	2679	0	263	2942	N/A	N/A	41.8	10.2	52.0	64.1	25.8
1984	9026	0	324	9350	30120	31.0	71.6	8.9	80.5	121.8	36.4
1985	29541	10	2815	32366	30120	107.5	380.1	44.0	424.1	77.7	64.0
1986	23729	0	2700	26429	31881	82.9	253.1	67.7	320.8	86.8	39.5
1987	15916	107	1192	17215	39946	43.1	202.6	32.1	234.7	78.6	37.1
1988	5800	1	2368	8169	40197	20.3	179.9	18.1	198.0	32.2	130.8
1989	6872	0	2125	8997	36508	24.6	38.5	19.5	58.0	178.5	109.0
1990	10981	45	2127	13153	35440	37.1	69.9	17.3	87.2	157.2	123.1
1991	10311	0	2176	12487	36066	34.6	84.1	15.9	100.0	122.6	136.9
1992	10898	0	949	11847	37947	31.2	114.1	42.5	156.6	95.5	22.3
1993	8613	0	184	8797	36430	24.1	38.3	15.1	53.4	224.9	12.2
1994	15625	0	290	15915	43717	36.4	83.9	12.8	96.7	186.2	22.7
1995	16332	0	150	16482	41455	39.8	108.6	5.5	114.1	150.4	27.3
1996	14597	0	699	15296	38687	39.5	118.5	1.9	120.4	123.2	367.9
1997	12070	0	na	12070	43182	82.3	105.7	na	na	114.2	na
1998	12868	0	na	12868	43182	29.8	125.7	na	na	102.4	na

Table A1.27. Chub harvest, quota, effort and CPUE for management area 5-3.

Year	Harvest (kg)				Quota (kg)	% Taken	Gill Effort (km)				Gill CPUE (kg/km)			
	GB03	GB04	GB06	Total			GB03	GB04	GB06	Total	GB03		GB04	GB06
											Harvest	Discard	Harvest	Harvest
1982	22284	5604	17227	45115	N/A	N/A	492.2	170.7	636.6	1299.5	45.3		32.8	27.1
1983	36101	17283	45477	98861	N/A	N/A	691.6	426.1	1356.8	2474.5	52.2		40.6	33.5
1984	50760	19340	60016	130116	182268	71.4	608.1	173.0	589.5	1370.6	83.4		111.8	101.8
1985	68764	11704	84901	165369	182268	90.7	802.4	83.4	797.4	1683.2	85.7		140.3	106.5
1986	47239	18150	64399	129788	182268	71.2	740.7	185.2	765.2	1691.1	63.8	12.2	98.0	84.2
1987	36063	20662	45287	102012	185787	54.9	542.0	172.6	691.3	1405.9	66.5	8.8	119.7	65.5
1988	53956	31826	67785	153567	185787	82.7	783.7	331.8	1093.4	2208.9	68.8	5.3	95.9	62.0
1989	66617	9665	73453	149735	185787	80.6	665.8	109.8	997.8	1773.4	100.1	9.2	88.0	73.6
1990	56829	5755	60718	123302	198722	62.0	707.5	54.9	791.4	1553.8	80.3	53.8	104.9	76.7
1991	49187	4324	56743	110254	204286	54.0	466.5	45.8	1054.5	1566.8	105.4	22.0	94.4	53.8
1992	56100	12159	57692	125951	204770	61.5	666.3	149.5	930.4	1746.2	84.2	19.3	81.3	62.0
1993	71153	27515	77512	176180	204286	86.2	981.6	391.8	1002.5	2375.9	72.4	15.4	70.2	77.3
1994	84577	36974	80362	201913	204286	98.8	1023.3	422.8	1150.9	2597.0	82.7	13.4	87.5	69.8
1995	55860	57776	66140	179776	204286	88.0	1113.2	933.6	894.1	2940.9	50.2	10.9	61.9	74.0
1996	38509	13179	83995	135683	214638	63.2	683.4	153.7	1367.6	2204.7	56.3	13.5	85.7	61.4
1997	33880	19066	78426	139066	204286	66.3	358.9	283.4	1503.1	2145.9	94.4	0.0	67.3	52.1
1998	9416	12454	na	21870	204286	10.7	37.8	128.2	na	na	107.2	na	97.1	na

Table A1.28. Yellow perch harvest and quota for management area 5-3.

Year	Harvest (kg)	Quota (kg)	Percent Taken
1982	337	N/A	N/A
1983	207	N/A	N/A
1984	433	4100	10.6
1985	193	4100	4.7
1986	52	4100	1.3
1987	1000	3899	25.6
1988	88	3899	2.3
1989	71	4554	1.6
1990	112	4423	2.5
1991	79	4525	1.7
1992	0	4548	0.0
1993	0	4552	0.0
1994	7	4116	0.2
1995	3	3356	0.1
1996	0	4302	0.0
1997	0	2809	0.2
1998	0	2412	0.0

Table A1.29. Lake trout/backcross harvest, quota and CPUE for management area 5-3.

Year	Harvest (kg)				Quota (kg)	% Taken	CPUE (kg/km)		
	GB03	GB04	GB06	Total			GB03	GB04	GB06
1982	0	0	0	0	N/A	N/A	0.0	--	--
1983	6	0	0	6	N/A	N/A	0.9	--	--
1984	0	0	0	0	4377	0.0	0.0	--	--
1985	252	0	1566	1818	4377	41.5	18.7	--	39.7
1986	1545	0	1520	3065	5044	60.8	15.3	--	24.9
1987	1332	0	1194	2526	2786	90.7	13.6	--	27.8
1988	525	0	1015	1540	2786	55.3	11.9	--	55.8
1989	42	0	568	610	2820	21.6	10.5	--	51.2
1990	137	0	292	429	2706	15.9	3.9	--	22.2
1991	226	0	1078	1304	2820	46.2	5.5	--	67.8
1992	36	0	1516	1552	3275	48.2	13.3	--	36.5
1993	318	0	192	510	2820	18.1	45.3	--	12.7
1994	203	46	509	758	2820	26.7	7.5	3.0	3.7
1995	496	29	840	1365	2820	48.4	19.0	0.2	8.6
1996	892	0	19	911	2820	41.3	12.9	--	0.1
1997	10771	0	--	10771	2706	398.0	5.9	--	--
1998	96	330	na	426	2706	15.7	10.5	3.1	na

Table A1.30. Lake whitefish harvest, quota, effort and CPUE for management area 5-4.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	4090	N/A	N/A	83.8	45.1
1983	1293	N/A	N/A	58.6	20.6
1984	291	5733	5.1	4.5	59.3
1985	587	5733	10.2	3.8	155.3
1986	714	5958	12.0	16.4	43.7
1987	3415	7225	47.3	50.3	67.9
1988	1303	7273	17.9	30.2	42.0
1989	2997	7220	41.5	36.5	82.1
1990	2019	6544	30.9	21.0	96.2
1991	4220	6538	64.5	56.3	75.0
1992	6345	6521	97.3	92.0	69.0
1993	7015	7586	92.5	107.4	65.3
1994	12362	9103	135.8	148.5	83.2
1995	9373	10013	93.6	69.6	134.7
1996	9081	11014	82.5	74.6	121.7
1997	10924	12116	90.2	51.8	210.7
1998	17337	13328	130.1	95.0	182.5

Table A1.31. Chub harvest, quota, effort and CPUE for management area 5-4.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	444	N/A	N/A	9.3	41.3
1983	900	N/A	N/A	71.7	12.6
1984	4746	13518	35.1	24.0	199.0
1985	5835	15546	37.5	47.6	85.6
1986	2901	13518	21.5	47.7	61.2
1987	5252	17884	29.4	68.3	76.9
1988	9368	18000	52.0	169.2	55.4
1989	779	18000	4.3	5.6	139.1
1990	169	18000	0.9	3.6	47.4
1991	3140	18000	17.4	36.5	86.0
1992	2584	17378	14.9	38.1	67.8
1993	3812	18000	21.2	56.5	42.0
1994	4021	18000	22.3	78.7	51.0
1995	1635	18000	9.1	28.1	58.2
1996	5141	18000	28.6	55.1	93.3
1997	10088	18000	56.0	110.6	91.3
1998	1348	18000	7.5	37.5	35.9

Table A1.32. Yellow perch harvest, quota, effort and CPUE for management area 5-4.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	8528	N/A	N/A	256.3	33.1
1983	4979	N/A	N/A	188.5	26.0
1984	4883	4767	102.4	66.1	73.9
1985	504	4767	10.6	11.9	42.4
1986	1476	4790	30.8	35.0	42.2
1987	2317	5230	44.3	46.9	49.4
1988	2268	5706	39.7	35.5	63.9
1989	682	5706	12.0	15.0	45.5
1990	1277	5706	22.4	17.8	71.6
1991	546	5706	9.6	16.9	32.3
1992	30	5707	0.1	1.4	21.4
1993	0	5706	0.0	0.0	--
1994	0	5136	0.0	0.0	--
1995	0	4109	0.0	0.0	--
1996	0	3698	0.0	0.0	--
1997	0	3328	0.0	0.0	--
1998	0	2854	0.0	0.0	--

Table A1.33. Lake whitefish harvest, quota, effort and CPUE for management area 5-5.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	3225	N/A	N/A	75.7	41.6
1983	5490	N/A	N/A	94.9	53.8
1984	4323	6759	64.0	39.3	109.4
1985	6162	6759	91.2	60.3	98.2
1986	9613	8111	118.5	95.6	101.0
1987	7595	10731	70.8	106.4	71.1
1988	3961	12620	31.4	55.7	70.5
1989	3900	11766	33.1	51.2	36.7
1990	5103	11353	44.9	54.1	94.3
1991	5914	11353	52.1	99.8	59.3
1992	11202	11353	98.7	179.3	62.5
1993	12240	12488	98.0	166.3	73.6
1994	16848	14985	112.4	203.7	82.7
1995	16347	16484	99.2	147.0	111.2
1996	17304	18133	95.4	145.3	119.1
1997	20161	19946	101.1	94.2	214.0
1998	23854	26477	90.1	160.7	148.4

Table A1.34. Chub harvest, quota, effort and CPUE for management area 5-5.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	2087	N/A	N/A	26.7	78.7
1983	14942	N/A	N/A	141.5	91.7
1984	13504	11265	119.9	134.2	101.4
1985	15063	12955	116.3	171.6	88.4
1986	10787	18925	57.0	152.2	66.5
1987	18396	31280	58.8	394.5	46.6
1988	25945	31488	82.4	399.7	64.9
1989	23767	31488	75.5	251.7	94.4
1990	5980	34364	17.4	89.9	66.5
1991	19481	34364	56.7	280.9	69.4
1992	24445	34370	70.1	369.3	66.2
1993	29323	34364	85.3	536.9	54.6
1994	20520	34364	59.7	418.9	49.0
1995	24991	34364	72.7	372.1	67.2
1996	24754	34364	72.0	376.0	65.8
1997	31768	37800	84.0	469.4	67.7
1998	14538	30736	47.3	345.6	42.1

Table A1.35. Yellow perch harvest, quota, effort and CPUE for management area 5-5.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	4957	N/A	N/A	111.9	43.2
1983	8108	N/A	N/A	297.6	27.2
1984	8263	6804	121.4	127.5	64.8
1985	3991	6804	58.7	94.7	42.1
1986	4868	11794	41.3	94.0	51.8
1987	7332	12500	58.7	141.1	52.0
1988	12035	13182	91.3	180.0	66.9
1989	4840	13182	36.7	89.8	53.9
1990	4078	13128	31.1	56.1	72.6
1991	2162	13128	16.5	65.1	33.2
1992	460	13128	3.5	27.8	16.6
1993	35	13128	0.1	1.8	16.7
1994	1	11815	0.1	0.3	3.3
1995	0	9452	0.0	0.0	--
1996	0	8507	0.0	0.0	--
1997	0	7657	0.0	0.0	--
1998	0	6564	0.0	0.0	--

Table A1.36. Lake whitefish harvest and quota for management area 5-6.

Year	Harvest (kg)	Quota (kg)	Percent Taken
1982	5836	N/A	N/A
1983	8450	N/A	N/A
1984	73	7480	1.0
1985	4283	7480	57.3
1986	8137	12211	66.6
1987	9060	16246	55.8
1988	3691	16354	22.6
1989	6572	16354	40.2
1990	1981	16308	12.1
1991	155	408	38.0
1992	165	431	38.3
1993	200	431	46.4
1994	2	517	0.3
1995	648	517	125.3
1996	250	11212	2.2
1997	29187	21556	135.4
1998	43190	21556	200.4

Table A1.37. Chub harvest, quota, effort and CPUE for management area 5-6.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)	
					Harvest	Discards
1982	10591	N/A	N/A	211.5	44.5	
1983	13582	N/A	N/A	159.4	54.6	
1984	27978	28748	97.3	303.7	91.2	
1985	34135	42077	81.1	325.5	103.4	
1986	29373	49822	59.0	342.5	84.0	2.7
1987	27263	54941	49.6	344.8	79.1	3.6
1988	40844	55307	73.8	477.3	85.6	no data
1989	41194	55307	74.5	376.2	109.5	7.5
1990	43668	60820	71.8	352.1	124.0	6.9
1991	40664	46070	88.3	419.0	97.1	9.8
1992	41455	52504	79.3	380.1	109.1	14.9
1993	43870	46070	95.2	517.2	84.8	5.3
1994	45001	46070	97.7	603.5	74.6	2.7
1995	37168	46070	80.7	483.8	76.8	10.5
1996	42762	75615	56.6	518.9	82.4	3.4
1997	42507	60820	100.5	568.0	74.8	4.7
1998	32733	60820	53.8	344.9	94.9	5.3

Table A1.38. Lake trout/backcross harvest and quota for management area 5-6.

Year	Harvest (kg)	Quota (kg)	Percent Taken
1982	0	N/A	N/A
1983	0	N/A	N/A
1984	0	2268	0.0
1985	7270	2268	320.5
1986	1717	2279	75.3
1987	3508	4558	77.0
1988	11923	4558	261.6
1989	4820	4558	105.7
1990	3373	4558	74.0
1991	12	0	0
1992	0	12	0
1993	0	12	0
1994	10	12	83.3
1995	30	12	250
1996	38	2291	1.7
1997	11690	4558	256.5
1998	16993	4558	372.8

Table A1.39. Lake whitefish harvest, quota, effort and CPUE for management area 5-7. Values shown are from reported commercial catch only.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	12241	N/A	N/A	433.8	25.5
1983	3039	N/A	N/A	130.4	22.0
1984	5649	13878	40.7	115.8	48.9
1985	8337	13878	60.1	181.3	46.3
1986	16783	20998	79.9	182.6	92.5
1987	9275	21021	44.1	142.8	64.9
1988	4431	24248	18.3	102.2	42.9
1989	6572	24338	27.0	100.7	65.2
1990	6446	14346	44.9	90.0	71.6
1991	5828	14618	39.9	33.6	173.5
1992	15229	15747	96.7	70.8	215.1
1993	13237	14127	93.7	123	107.6
1994	7953	15541	51.2	29.9	266.0
1995	12108	15671	77.3	64.4	188.0
1996	9841	39200	25.1	125.1	78.7
1997	8256	39200	71.3	118.0	70.0
1998	12432	39742	31.3	134.6	92.4

Table A1.40. Chub harvest, quota, effort and CPUE for management area 5-7.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	0	N/A	N/A	0.0	0.0
1983	5204	N/A	N/A	44.5	70.2
1984	6668	8111	82.2	78.2	85.8
1985	9072	11918	76.1	102.4	89.2
1986	4411	10364	42.6	60.5	68.5
1987	8253	10471	78.8	137.4	60.1
1988	10492	11441	91.7	108.6	96.6
1989	9870	10538	93.7	76.1	129.7
1990	11167	11592	96.3	97.4	114.7
1991	10102	11592	87.1	85.2	118.6
1992	15965	11594	137.7	150.9	105.8
1993	8338	12202	68.3	82.3	101.3
1994	12267	12202	100.5	193.6	63.4
1995	8896	12202	72.9	71.0	125.3
1996	5243	12202	43.0	63.1	83.1
1997	10432	12202	83.0	188.1	55.5
1998	8816	12202	72.3	109.6	80.4

Table A1.41. Yellow perch harvest, quota, effort and CPUE for management area 5-7.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	3613	N/A	N/A	5.2	186.5
1983	9454	N/A	N/A	154.2	61.0
1984	597	4672	12.8	5.6	75.4
1985	2081	4672	44.5	21.6	81.2
1986	7258	7031	103.2	97.4	72.6
1987	5504	10542	52.2	104.0	51.7
1988	6147	11211	54.8	97.1	56.6
1989	1693	11226	15.1	23.0	44.0
1990	4194	8729	48.0	65.7	63.9
1991	2228	8729	25.5	32.6	68.3
1992	2240	8922	25.1	50.7	44.2
1993	689	9183	7.5	20.1	34.4
1994	962	7039	13.4	28.7	32.9
1995	250	5631	4.4	8.8	28.4
1996	50	7274	0.7	2.7	18.5
1997	2	6547	<0.1	0.6	4.2
1998	3	5437	<0.1	0.7	4.3

Table A1.42. Lake whitefish harvest, quota, effort and CPUE for management area 5-8.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	11726	N/A	N/A	310.6	36.9
1983	12070	N/A	N/A	310.2	34.9
1984	898	13518	6.6	20.6	37.1
1985	3926	3605	108.9	27.2	137.9
1986	4560	3605	126.5	20.9	210.0
1987	3344	9012	37.1	30.2	108.9
1988	3468	9072	38.2	37.7	91.2
1989	4114	9072	45.3	27.1	151.7
1990	8239	9072	90.8	39.5	208.4
1991	9617	9979	96.4	44.9	214.2
1992	11715	11977	97.8	56.2	208.4
1993	15320	15420	99.4	108.1	141.7
1994	17381	18504	93.9	89.0	195.3
1995	15268	18504	82.5	95.1	160.5
1996	19528	30509	64.0	82.3	237.3
1997	22166	25966	156.6	72.5	305.7
1998	22329	24628	90.7	52.5	425.3

Table A1.43. Chub harvest, quota, effort and CPUE for management area 5-8.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)	
					Harvest	Discards
1982	7651	N/A	N/A	67.4	51.7	
1983	25413	N/A	N/A	174.0	90.4	
1984	22639	13518	167.5	289.4	74.0	
1985	22546	25339	89.0	281.9	80.5	
1986	16711	23071	72.4	246.9	68.1	
1987	13786	16447	83.8	268.7	50.5	
1988	16339	16533	98.8	172.8	94.5	
1989	22366	16533	135.3	159.6	140.1	
1990	16968	18186	93.3	157.1	108.0	
1991	17905	18168	98.6	214.1	83.6	
1992	16442	18171	90.5	150.5	109.2	
1993	15378	18168	84.6	174.0	88.4	
1994	17577	18168	96.7	170.1	103.3	
1995	19991	19985	100.0	254.7	78.5	2.5
1996	20038	29956	66.9	262.2	76.4	5.4
1997	20263	22493	109.9	259.3	78.1	0.0
1998	17296	19985	86.5	199.7	86.6	4.7

Table A1.44. Lake trout/backcross harvest, quota, effort and CPUE for management area 5-8.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	21238	N/A	N/A	0.0	0.0
1983	17798	N/A	N/A	1.1	108.2
1984	2225	2268	98.1	0.0	0.0
1985	4220	4536	93.0	30.3	130.9
1986	3945	4536	87.0	20.9	164.2
1987	4374	4536	96.4	30.2	143.8
1988	4032	4536	88.9	37.7	102.3
1989	4584	4536	101.1	27.1	169.1
1990	4470	4536	98.5	36.3	123.3
1991	5456	4536	120.3	44.9	121.5
1992	4269	4536	96.5	56.2	76.0
1993	5707	4536	125.8	92.7	61.6
1994	6170	4536	136.0	87.3	70.7
1995	6273	4536	138.3	142.1	44.1
1996	5638	6799	82.9	156.5	36.0
1997	5148	6751	76.3	72.5	71.0
1998	3567	4536	78.6	42.2	84.5

Table A1.45. Lake whitefish harvest, quota, effort and CPUE for management area 5-9.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	25554	N/A	N/A	644.4	36.6
1983	28233	N/A	N/A	634.4	38.9
1984	26863	26811	100.2	239.6	112.8
1985	33472	33565	99.7	128.8	261.5
1986	33112	40361	82.0	152.4	218.6
1987	19239	40441	47.6	151.4	127.1
1988	19457	40710	47.8	148.3	131.2
1989	18663	38460	48.5	136.6	136.6
1990	19937	40710	49.0	118.4	168.4
1991	38541	44590	86.4	164.3	234.6
1992	31404	35320	88.9	103.0	304.9
1993	50883	54743	92.9	194.3	261.9
1994	58702	60217	97.5	255.3	229.9
1995	56017	60217	93.0	204.0	274.6
1996	51195	66239	77.3	184.7	277.2
1997	49515	66239	75.3	152.8	324.0
1998	64684	72267	89.5	198.0	326.7

Table A1.46. Chub harvest, quota, effort and CPUE for management area 5-9.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	0	N/A	N/A	0.0	0.0
1983	7001	N/A	N/A	82.5	29.1
1984	3135	3154	99.4	51.7	61.0
1985	2839	3627	78.3	38.4	74.4
1986	5596	6849	81.7	84.7	66.5
1987	2419	6736	35.9	58.4	41.2
1988	7058	6780	104.1	92.8	75.9
1989	11171	11303	98.8	85.1	131.2
1990	9991	9958	100.3	68.6	145.6
1991	7164	9958	71.9	61.1	117.2
1992	4937	8963	55.1	46.1	107.1
1993	8581	9958	86.2	117.0	73.4
1994	9646	9958	96.8	141.7	68.1
1995	7979	9958	80.1	133.5	59.8
1996	6398	9958	64.3	106.0	60.4
1997	9373	9958	95.3	146.8	63.9
1998	3857	9958	38.7	87.3	44.2

Table A1.47. Lake trout/backcross harvest, quota, effort and CPUE for management area 5-9.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	19	N/A	N/A	0.7	27.1
1983	0	N/A	N/A	0.0	0.0
1984	4	4037	0.1	3.2	1.3
1985	4000	4037	99.1	117.8	33.6
1986	4627	4930	93.9	130.2	35.5
1987	3090	4937	62.6	128.5	23.9
1988	4909	4937	99.4	124.1	39.5
1989	4574	4937	92.6	105.4	43.4
1990	4818	4937	97.6	79.6	60.6
1991	4729	4927	96.0	119.2	39.7
1992	2216	4240	52.3	61.5	36.0
1993	4800	4937	97.2	150.1	32.0
1994	4651	4937	94.1	186.4	24.9
1995	4992	4937	101.1	173.8	28.7
1996	4073	4937	82.5	160.7	25.3
1997	2617	4937	53.2	134.7	19.4
1998	3164	4882	64.8	186.1	17.0

Table A1.48. Lake whitefish harvest and quota for management area 6-1.

Year	Gill Net Harvest (kg)				Trap Net Harvest (kg)			Harvest Total	Quota (kg)	Percent Taken
	NC01	NC02	NC03	Total	NC01	NC02	Total			
1982	14988	152327	11553	178868	0	520	520	179388	N/A	N/A
1983	26070	175116	14086	215272	0	0	0	215272	N/A	N/A
1984	35782	123298	24773	183853	0	100	100	183953	243345	75.6
1985	22957	129839	27709	180505	0	1797	1797	182302	271566	67.1
1986	24280	137953	14030	176263	2258	501	2759	179022	242779	73.7
1987	8924	146310	20369	175603	8113	21489	29602	205205	244031	84.1
1988	17297	124432	14090	155819	5002	23427	28429	184248	244031	75.5
1989	52116	69799	8687	130602	1952	8387	10339	140941	243151	58.0
1990	37589	73938	16638	128165	1134	6551	7685	135850	217577	62.4
1991	18175	112283	25528	155986	0	11654	11654	167640	216576	77.4
1992	24346	92346	53500	170192	0	2709	2709	172901	214342	80.7
1993	45553	106074	24123	175750	0	17395	17395	193145	214306	90.1
1994	18592	106146	30371	155109	0	145	145	155254	169065	91.7
1995	13381	149367	33581	196329	240	472	712	197041	205027	96.1
1996	23808	177196	29763	230767	0	0	0	230767	239665	96.3
1997	10447	194780	40575	245802	0	0	0	245802	268173	91.7
1998	32079	192830	51936	276845	0	0	0	276845	307458	90.0

Table A1.49. Lake whitefish effort and CPUE for management area 6-1.

Year	Gill Net Effort (km)				Trap Effort (# lifts)			Gill CPUE (kg/km)			Trap CPUE (kg/lift)	
	NC01	NC02	NC03	Total	NC01	NC02	Total	NC01	NC02	NC03	NC01	NC02
1982	302.4	2199.5	298.2	2800.1	0	9	9	49.6	69.3	38.7	0.0	57.8
1983	344.6	2544.6	320.7	3209.9	0	0	0	75.7	68.8	43.9	0.0	0.0
1984	347.7	2173.7	459.0	2980.4	0	2	2	102.9	56.7	54.0	0.0	50.0
1985	336.0	2522.9	500.0	3358.9	0	24	24	68.3	51.5	55.4	0.0	74.9
1986	463.3	2699.0	331.0	3493.3	17	4	21	52.4	51.1	42.4	132.8	125.3
1987	230.8	2328.3	386.4	2945.5	58	138	196	38.7	62.8	52.7	139.9	155.7
1988	414.9	2218.7	272.6	2906.2	61	198	259	41.7	56.0	51.7	82.0	118.3
1989	1139.1	1691.4	276.0	3106.5	23	103	126	45.8	41.3	31.5	84.9	81.4
1990	909.9	1689.4	494.7	3094.0	27	146	173	41.3	43.8	33.6	42.0	44.9
1991	385.7	1847.5	415.8	2649.0	0	114	114	47.1	60.8	61.4	0.0	102.2
1992	532.7	1583.5	684.3	2800.5	0	44	44	45.7	58.3	78.2	0.0	61.6
1993	808.8	1905.2	418.3	3132.3	0	182	182	56.3	55.6	56.3	0.0	95.6
1994	360.7	1544.5	472.8	2378.0	0	3	3	51.5	68.7	64.2	0.0	48.3
1995	180.1	1489.6	280.1	1949.8	2	6	8	74.3	100.3	119.9	120.0	78.7
1996	258.6	1414.6	214.1	1887.3	0	0	0	92.1	125.3	139.0	--	--
1997	139.4	1719.5	232.9	2091.8	0	0	0	74.9	113.3	174.2	--	--
1998	318.2	1871.0	304.3	2493.5	0	0	0	100.8	103.1	170.7	--	--

Table A1.50. Yellow perch harvest and quota for management area 6-1.

Year	Gill Net Harvest (kg)				Trap Net Harvest (kg)			Harvest Total	Quota (kg)	Percent Taken
	NC01	NC02	NC03	Total	NC02	NC03	Total			
1982	3	5223	27220	32446	0	0	0	32446	N/A	N/A
1983	0	11003	19317	23683	0	0	0	23683	N/A	N/A
1984	67	9221	38831	48119	0	0	0	48119	71798	67.0
1985	0	6993	32834	39827	0	0	0	39827	80299	49.6
1986	118	3532	20149	23799	0	2	2	23801	75170	31.7
1987	0	4292	29202	33495	0	0	0	33495	75284	44.5
1988	417	8247	43679	52343	0	0	0	52343	82069	63.8
1989	1195	4944	32773	38912	0	1077	1077	39989	81381	47.8
1990	863	7814	33419	42096	0	312	312	42408	72916	57.7
1991	1309	5614	43422	50345	0	256	256	50601	67418	75.1
1992	1254	9844	25936	37034	1177	1433	2610	39644	68793	57.6
1993	1206	3315	12655	17176	79	913	992	18168	60676	29.9
1994	0	2397	14357	16754	0	453	453	17207	36773	46.8
1995	0	2223	12241	14464	0	1	1	14465	35155	41.2
1996	0	542	7673	8215	0	10	10	8225	33802	24.3
1997	0	840	5806	6646	0	0	0	6646	56498	11.8
1998	0	126	8743	8869	0	0	0	8869	27319	32.5

Table A1.51. Yellow perch effort and CPUE for management area 6-1.

Year	Gill Net Effort (km)				Trap Net Effort (#lifts)			Gill CPUE (kg/km)			Trap (CPUE) (kg/lift)
	NC01	NC02	NC03	Total	NC02	NC03	Total	NC01	NC02	NC03	
1982	3.7	66.9	544.3	614.9	0	0	0	0.8	78.1	50.0	--
1983	0.0	215.3	386.3	601.6	0	0	0	0.0	51.1	50.0	--
1984	1.3	179.8	734.7	915.8	0	0	0	51.5	51.3	52.9	--
1985	0.0	150.5	591.1	741.6	0	0	0	0.0	46.5	55.5	--
1986	1.0	142.5	603.8	747.3	0	3	3	118.0	24.8	33.4	0.9
1987	0.0	100.2	612.0	712.2	0	0	0	0.0	42.8	47.7	--
1988	7.4	187.0	670.4	864.8	0	0	0	56.4	44.1	65.2	--
1989	20.9	187.8	610.6	819.3	0	88	88	57.2	26.3	53.7	12.2
1990	11.1	218.9	597.2	827.2	0	148	148	78.0	35.7	56.0	2.1
1991	28.3	182.8	1083.0	1294.1	0	37	37	46.2	30.7	40.1	6.9
1992	6.8	220.3	875.2	1102.3	173	345	518	156.8	37.6	29.6	4.2
1993	7.6	113.5	438.1	559.2	60	216	276	158.8	29.2	28.9	4.3
1994	0.0	61.4	609.5	670.90	0	65	65	0.0	39.0	24.4	7.0
1995	0.0	82.1	451.2	533.3	0	1	1	0.0	27.1	27.1	1.0
1996	0.0	26.5	327.9	354.4	0	5	5	0.0	20.5	23.4	2.0
1997	0.0	26.5	200.0	226.5	0	0	0	0.0	31.7	29.0	0.0
1998	0.0	13.8	260.2	274.0	0	0	0	0.0	9.1	33.6	--

Table A1.52. Walleye harvest and quota for management area 6-1.

Year	Gill Net Harvest (kg)				Trap Net Harvest (kg)				Harvest Total	Quota (kg)	Percent Taken
	NC01	NC02	NC03	Total	NC01	NC02	NC03	Total			
1982	17014	1694	1961	20669	0	0	878	878	21547	N/A	N/A
1983	5106	2776	2324	10206	0	159	608	767	10973	N/A	N/A
1984	4659	2340	3774	10773	0	0	65	65	10838	22002	49.0
1985	12284	2219	2855	17358	0	65	0	65	17423	22002	78.9
1986	8135	3649	2613	14397	9	0	582	582	14979	22001	65.4
1987	7143	2449	2274	11866	7	619	103	722	12588	22227	53.4
1988	5910	1737	4184	11831	14	222	0	222	12053	22203	54.7
1989	10474	3238	2702	16414	0	315	17	332	16746	22383	73.3
1990	7943	2002	2529	12474	0	60	1047	1107	13581	21224	58.8
1991	7638	1897	2644	12179	0	63	433	496	12675	20069	63.2
1992	10101	381	1841	12323	0	46	385	431	12754	20111	55.8
1993	7182	904	1956	10042	0	100	32	132	10174	20109	50.6
1994	6249	453	1161	7863	0	0	0	0	7863	16100	48.9
1995	6125	666	626	7417	0	0	0	0	7417	10385	71.4
1996	4755	250	351	5356	0	0	17	17	5373	10431	51.5
1997	3387	85	739	4211	0	0	0	0	4211	9818	42.9
1998	3833	350	562	4745	0	0	0	0	4745	9524	49.8

Table A1.53. Walleye effort for management area 6-1.

Year	Gill Net Effort (km)				Trap Effort (# lifts)			
	NC01	NC02	NC03	Total	NC01	NC02	NC03	Total
1982	452.4	185.7	23.6	661.7	0	0	79	79
1983	172.6	288.3	42.8	503.7	0	9	57	66
1984	153.1	312.4	104.1	569.6	0	0	21	21
1985	367.8	241.8	45.3	654.9	0	11	0	11
1986	334.4	283.6	41.8	659.8	5	0	74	79
1987	268.2	245.6	92.8	606.6	4	39	36	79
1988	262.5	140.7	48.2	451.4	4	48	0	52
1989	502.7	387.7	36.7	927.1	0	17	20	19
1990	267.9	27.3	23.1	318.4	0	2	44	46
1991	294.1	342.1	192.8	829.0	0	24	27	51
1992	402.8	187.9	33.0	623.7	0	28	125	171
1993	318.8	150.2	47.5	516.5	0	34	12	46
1994	210.3	7.0	5.2	222.5	0	0	0	0
1995	194.5	10.7	12.4	217.6	0	0	0	0
1996	153.1	6.5	10.5	170.1	0	0	5	5
1997	90.7	4.6	18.8	114.1	0	0	0	0
1998	89.3	6.1	11.8	107.2	0	0	0	0

Table A1.54. Walleye CPUE for management area 6-1.

Year	Gill CPUE (kg/km)			Trap CPUE (kg/net)		
	NC01	NC02	NC03	NC01	NC02	NC03
1982	37.6	9.1	83.1	--	--	11.1
1983	29.6	8.5	54.3	--	17.0	10.7
1984	30.4	7.0	36.3	--	--	3.1
1985	33.4	8.7	63.0	--	5.9	--
1986	24.3	12.2	62.5	1.9	--	7.8
1987	26.6	7.0	24.5	1.9	16.0	2.9
1988	22.5	10.6	86.8	3.6	4.6	--
1989	20.8	7.3	73.6	--	18.2	8.5
1990	29.6	71.0	109.5	--	3.0	12.5
1991	26.0	5.5	13.7	--	2.6	16.0
1992	25.1	2.0	55.8	--	1.6	3.1
1993	22.5	6.0	41.2	--	2.9	2.7
1994	29.7	64.7	223.3	--	--	--
1995	31.5	62.2	50.5	--	--	--
1996	31.1	38.5	33.4	--	--	3.4
1997	37.4	18.6	39.4	--	--	--
1998	42.9	57.4	47.6	--	--	--

Table A1.55. Lake trout/backcross harvest, quota and CPUE for management area 6-1.

Year	Harvest (kg)				Quota (kg)	Percent Taken	Gill CPUE (kg/km)		
	NC01	NC02	NC03	Total			NC01	NC02	NC03
1982	119	36	8	163	N/A	N/A	24.3	2.5	0.0
1983	10	139	14	318	N/A	N/A	0.6	2.0	0.0
1984	38	98	70	206	2743	7.5	2.0	1.2	0.0
1985	41	504	1261	1806	2743	65.8	1.6	1.2	4.7
1986	54	1939	2651	4644	5612	82.8	1.4	2.1	6.0
1987	6	2993	1306	4305	5397	79.8	0.8	3.8	3.1
1988	39	2436	1565	4040	5397	74.9	0.9	3.1	9.5
1989	450	2548	2837	5835	5395	108.2	1.9	3.3	9.4
1990	483	2730	3914	7127	7735	92.1	2.3	5.3	7.1
1991	653	4135	3800	8588	7232	118.8	4.5	3.5	6.7
1992	567	3944	4692	9203	8494	108.3	2.5	3.8	8.3
1993	989	4376	2595	7960	8494	93.7	2.7	3.2	5.1
1994	935	4157	4192	9284	5550	167.3	2.8	3.7	8.0
1995	875	8273	4443	13594	5322	255.4	3.7	7.4	11.6
1996	379	5186	9235	14800	5550	266.7	1.8	5.8	34.6
1997	134	4349	3963	8446	5322	165.2	1.6	4.2	19.4
1998	323	6340	2602	9265	5737	161.5	1.2	4.5	9.6

Table A1.56. Northern pike harvest and available quota for management area 6-1.

Year	Harvest (kg)	Quota (kg)	Percent Taken
1982	8736	N/A	N/A
1983	7658	N/A	N/A
1984	8484	19553	43.4
1985	10302	19553	52.7
1986	10000	19025	52.6
1987	6709	19069	35.2
1988	5630	19069	29.5
1989	7641	19410	39.4
1990	6459	18729	34.5
1991	4068	16036	25.4
1992	4072	16036	25.4
1993	2540	16036	15.8
1994	1689	8579	19.7
1995	1025	8125	12.6
1996	986	8579	11.5
1997	380	8125	4.7
1998	838	8392	9.6

Table A1.57. Lake whitefish harvest, quota, effort and CPUE for management area 6-3.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	852	N/A	N/A	82.0	10.4
1983	592	N/A	N/A	54.2	10.6
1984	559	6759	8.3	13.2	39.2
1985	128	6759	1.9	2.8	46.1
1986	274	5910	4.6	6.4	37.5
1987	82	4338	1.9	11.9	6.8
1988	198	4336	4.6	3.2	61.9
1989	849	4855	17.5	1.1	770.9
1990	2507	4774	52.5	14.8	169.1
1991	1146	4774	24.0	3.7	309.7
1992	800	4774	16.8	6.5	123.1
1993	62	4774	1.3	1.1	55.6
1994	2267	4774	47.5	19.4	116.9
1995	765	4774	16.0	7.7	99.4
1996	1527	4432	34.5	21.5	71.0
1997	0	3818	0.0	0.0	--
1998	526	3818	13.8	na	na

Table A1.58. Yellow perch harvest, quota, effort and CPUE for management area 6-3.

Year	Harvest (kg)	Quota (kg)	Percent Taken	Effort (km)	CPUE (kg/km)
1982	2578	N/A	N/A	47.6	50.7
1983	7758	N/A	N/A	146.0	50.6
1984	6153	12825	48.0	113.9	54.4
1985	113	4324	2.6	36.7	58.7
1986	1376	5450	25.2	44.6	31.1
1987	836	5347	15.6	19.0	44.3
1988	4029	5347	75.4	123.1	32.7
1989	5	1245	0.4	5.5	0.9
1990	0	1245	0.0	0.0	--
1991	0	1245	0.0	0.0	--
1992	0	1245	0.0	0.0	--
1993	0	1245	0.0	0.0	--
1994	0	1245	0.0	0.0	--
1995	0	1048	0.0	0.0	--
1996	0	904	0.0	0.0	--
1997	0	896	0.0	0.0	--
1998	0	623	0.0	0.0	--

Table A1.59. Lake trout/backcross harvest, quota, effort and CPUE for management area 6-3.

Year	Harvest (kg)	Quota (kg)	Percent Taken	CPUE (kg/km)
1982	1073	N/A	N/A	1.0
1983	2041	N/A	N/A	25.7
1984	717	1134	63.2	1.0
1985	487	1134	42.9	150.0
1986	563	1134	49.6	57.1
1987	430	1023	42.0	61.6
1988	2135	1023	208.7	523.0
1989	941	877	107.3	no data
1990	553	888	71.4	197.5
1991	362	888	40.8	181.0
1992	517	888	58.2	105.4
1993	89	888	10.0	59.8
1994	259	888	29.2	18.9
1995	19	888	2.1	17.3
1996	181	774	23.4	8.4
1997	0	660	0.0	--
1998	26	660	3.9	no data

APPENDIX 2

Table A2.1. Standardized year-class strength index values from assessment netting projects in various Lake Huron management areas, using multi-filament nets to 1994.

Year Class	Whitefish			Chub					Yellow Perch		
	4-4	4-5	5-8	4-4	4-5	5-3		5-8	4-4	4-5	6-1
						GB03*	GB06*				
1976			0.2					1.0			
1977			7.3	11.4				2.7			
1978	6.1		2.7	4.2				3.6			
1979	7.1		1.0	3.0				2.9	0.3		
1980	9.6		0.6	9.1	5.6			12.1	6.6		
1981	9.0	0.2	0.4	4.6	2.6			4.1	5.3	11.8	
1982	8.6	11.3	7.7	20.0	20.3	2.7		5.5	5.3	7.4	9.0
1983	5.7	1.4	0.9	13.4	8.2	15.2		55.2	26.6	2.8	24.1
1984	5.1	0.9	0.4	20.1	14.1	17.6	17.4	5.8	3.6	1.8	3.1
1985	9.9	5.1	1.9	2.7	5.1	11.3	8.2	2.4	0.4	4.4	3.0
1986	16.0	24.2	2.8	2.8	3.4	3.9	1.1	2.1	14.5	12.9	6.3
1987	22.5	8.3	14.1	2.4	2.3	2.4	3.3	2.9	25.2	15.1	32.4
1988	7.7	20.6	24.1	43.3	24.1	17.9	25.2	24.1	17.3	22.7	9.1
1989	12.1	21.0	26.4	7.9	14.9	12.5	12.7	6.0	2.9	10.0	10.3
1990	15.5	9.9	30.6	4.0	9.1	9.4	5.6	9.7	2.5	15.7	3.9
1991	9.0	8.4	27.8	0.3	6.0	5.9	8.3	15.6	20.1	14.7	11.0
1992	3.3	1.1	18.5	0				2.3	0.1	1.5	0.2
1993	0.9	5.6	26.5						5.4	0	0.5
Mean	9.3	9.1	10.2	9.3	9.6	9.9	10.2	9.3	9.1	9.3	9.4

* GB03 and GB06 are assessment sub-areas of management area 5-3.

Table A2.2. Standardized year-class strength index values from assessment netting projects in various Lake Huron management areas, using monofilament nets since 1993.

Year Class	Whitefish			Chub					Yellow Perch		
	4-4	4-5	5-8	4-4	4-5	5-3		5-8	4-4	4-5	6-1
						GB03*	GB06*				
1988						12.1	5.3				
1989				15.7	18.2	13.0	17.1	3.6			
1990	19.4	12.3	21.2	30.4	15.8	16.4	15.5	4.8	5.2	3.1	16.0
1991	10.5	14.1	11.1	4.0	10.6	12.8	6.8	12.7	47.8	12.4	17.7
1992	9.4	2.6	8.7	0.7	3.0	7.3	4.1	3.1	1.0	0.4	0.9
1993	10.0	16.9	10.1	3.3	4.1	4.5	4.4	4.7	20.4	5.9	17.1
1994	4.7	7.6	1.6	3.0	6.5	5.4	9.0	18.9	0.9	27.8	6.8
1995	5.7	9.6	17.1	11.2	9.1	8.1	30.0	14.2	4.1	13.7	7.3
1996	14.6	8.7	11.1	48.2				20.3	0	0.9	6.1
1997	21.2	16.4	2.1						0	23.8	16.0
Mean	11.9	11.0	10.4	14.6	9.6	10.0	11.5	10.3	9.9	11.0	10.9

* GB03 and GB06 are assessment sub-areas of management area 5-3.

Table A2.3. Walleye catch information for undersized fish (<350 mm total length) from partnership index fishing using two trap nets in management area 4-5, summer and fall 1994 - 1998.

Month	# of Net Lifts	# of Net Nights Fished	# Undersize Walleye Caught	CPUE (per net night)	# Walleye Aged	Age Composition (%)		
						Age 1	Age 2	Age 3
June, 1994	4	15	38	2.53	8	12	88	0
July	5	18	42	2.33	18	0	94	6
August	6	21	86	4.10	24	46	46	8
September	1	3	5	1.67	5	100	0	0
Total 1994	16	57	171	3.00	55	31	64	5
June, 1995	5	15	141	9.40	20	5	95	0
July	11	36	174	4.83	30	10	90	0
August	7	23	102	4.43	57	12	88	0
October	1	3	21	7.00	5	100	0	0
Total 1995	24	77	438	5.69	112	14	86	0
June, 1996	1	3	48	16.00	5	0	100	0
July	3	7	144	20.57	16	0	100	0
August	1	5	14	2.80	5	0	100	0
Total 1996	4	15	206	13.73	26	0	100	0
June, 1997	2	9	7	0.78	5	0	60	40
July	7	28	77	2.75	45	16	62	22
August	7	29	68	2.34	77	42	50	8
September	8	36	72	2.00	64	77	20	3
October	4	12	13	1.08	59	81	19	0
Total 1997	28	114	237	2.08	250	54	38	8
May, 1998	2	7	21	3.00	18	0	100	0
June	6	19	671	35.32	30	3	94	3
July	9	34	790	23.24	57	0	100	0
September	2	10	60	6.00	4	0	100	0
Total 1998	19	70	1542	22.03	109	1	98	1

Table A2.4. Standardized year-class strength index values for lake whitefish in management area 6-1 from 1993 -1996 co-operative index fishing.

Year-Class	Index Value
1990	9.7
1991	11.3
1992	7.4
1993	12.3
1994	13.9
1995	0.9
Mean	9.3

Note: Since 1993 this index project has used monofilament nets with 50m panels of each of 51, 64 and 76 mm mesh. A few samples from management area 4-2 are included in the data.

APPENDIX 3

Final quotas on 1998 Lake Huron commercial fishing licences as percent of 1997 base quotas.

QUOTA AREA	WHITEFISH	CHUB	WALLEYE	YELLOW PERCH *	STURGEON	PIKE	CHANNEL CATFISH	LAKE TROUT
4-1	110%	100%	100%	100% *	100%	no quota	100%	100%
4-2	110%	100%	100%	*	100%	100%	100%	100%
4-3	110%	110%	100%	*	100%	100%	100%	100%
4-4	100%	100%	100%	*	100%	100%	unlimited	100%
4-5	110%	90%	100%	*	100%	100%	100%	100%
4-7	100%	100%	100%	*	no quota	100%	unlimited	100%
5-1	110%	100%	100%	*	100%	100%	no quota	100%
5-2 **	110%	100%	100%	*	100%	100%	no quota	no quota
5-3	100%	100%	no quota	*	no quota	100%	100%	100%
5-4	110%	100%	100%	*	no quota	no quota	no quota	no quota
5-5	110%	100%	no quota	*	no quota	no quota	no quota	no quota
5-6	100%	100%	100%	*	no quota	no quota	no quota	100%
5-7	100%	100%	100%	*	100%	100%	no quota	100%
5-8	110%	100%	no quota	*	no quota	no quota	no quota	100%
5-9	110%	100%	100%	*	100%	no quota	unlimited	100%
6-1	110%	no quota	90%	80% *	100%	100%	100%	100%
6-3	100%	no quota	no quota	*	no quota	100%	100%	100%

* Final quotas for 1998 were 50% of the highest quota since 1990 with the following exceptions: individual quotas of 100 kg or less were not reduced, no quotas were reduced to less than 100 kg, and quotas in management area 6-1 were reduced by 20%, except in assessment area NC04 where quotas were not changed from 1997.

** Some licences in quota area 5-2 had changes to quota other than the figures presented here due to a special quota adjustment program.

APPENDIX 4

Commercial fisheries involved in onboard commercial catch sampling or other co-operative assessment projects in 1998.

FISHERS:

Beausoleil First Nation
Carlson Brothers Fisheries
Elmer Carlson
John Deeg
Douglas Goodison
Gary Goodison
G & N Green
Robert Herbert
Murray Hore
Huber Fisheries
William Jackson
William Karwaski
Liddle Brothers Fisheries Limited
Dan MacLeod
Mathew Miklovic
Wayne Mitchell
Bryan Nyman
Leonard Nyman
Glenn Parr
Vito Peralta
John Perks
Pilon Fisheries Limited
Ulysses and Isabelle Pratas
Andrew Pucovsky
Purdy Fisheries Limited
The Purvis Brothers Limited
Stanley Telford
Edward Tonello
Walter White
Wikwemikong First Nation
Willard Witty